

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**

**THIS PAGE BLANK (USPTO)**

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
9 August 2001 (09.08.2001)

PCT

(10) International Publication Number  
**WO 01/57272 A2**

(51) International Patent Classification<sup>7</sup>: **C12Q 1/68**

94043 (US). RANK, David, R. [US/US]; 117 El Dorado Commons, Fremont, CA 94539 (US).

(21) International Application Number: **PCT/US01/00663**

(22) International Filing Date: 30 January 2001 (30.01.2001)

(74) Agent: RONNING, Royal, N., Jr.; Amersham Pharmacia Biotech, Inc., 800 Centennial Avenue, Piscataway, NJ 08855 (US).

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

|            |                                |    |
|------------|--------------------------------|----|
| 60/180,312 | 4 February 2000 (04.02.2000)   | US |
| 60/207,456 | 26 May 2000 (26.05.2000)       | US |
| 09/608,408 | 30 June 2000 (30.06.2000)      | US |
| 09/632,366 | 3 August 2000 (03.08.2000)     | US |
| 60/234,687 | 21 September 2000 (21.09.2000) | US |
| 60/236,359 | 27 September 2000 (27.09.2000) | US |
| 0024263.6  | 4 October 2000 (04.10.2000)    | GB |

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (*for all designated States except US*): MOLECULAR DYNAMICS, INC. [—/US]; 928 East Arques Avenue, Sunnyvale, CA 94086 (US).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): PENN, Sharron, G. [GB/US]; 617 South Delaware Street, San Mateo, CA 94402 (US). HANZEL, David, K. [US/US]; 968 Loma Verde Avenue, Palo Alto, CA 94303 (US). CHEN, Wensheng [CN/US]; 210 Easy Street #25, Mountain View, CA

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: HUMAN GENOME-DERIVED SINGLE EXON NUCLEIC ACID PROBES USEFUL FOR ANALYSIS OF GENE EXPRESSION IN HUMAN PLACENTA

(57) Abstract: A single exon nucleic acid microarray comprising a plurality of single exon nucleic acid probes for measuring gene expression in a sample derived from human placenta is described. Also described are single exon nucleic acid probes expressed in the placenta and their use in methods for detecting gene expression.

WO 01/57272 A2

HUMAN GENOME-DERIVED SINGLE EXON NUCLEIC ACID PROBES USEFUL  
FOR ANALYSIS OF GENE EXPRESSION IN HUMAN PLACENTA

CROSS REFERENCE TO RELATED APPLICATIONS

5

The present application is a continuation-in-part of U.S.  
patent application serial nos. 09/632,366, filed August 3,  
2000 and 09/608,408, filed June 30, 2000; claims the  
benefit under 35 U.S.C. s 119(e) of U.S. provisional patent  
10 application serial nos. 60/236,359, filed September 27,  
2000, 60/234,687, filed September 21, 2000, 60/207,456,  
filed May 26, 2000, and 60/180,312, filed February 4, 2000;  
and further claims the benefit under 35 U.S.C. s 119(a) of  
UK patent application no. 0024263.6, filed October 4, 2000,  
15 the disclosures of which are incorporated herein by  
reference in their entireties.

REFERENCE TO SEQUENCE LISTING AND INCORPORATION BY  
REFERENCE THEREOF

20

The present application includes a Sequence Listing in  
electronic format, filed pursuant to PCT Administrative  
Instructions 801 - 806 on a single CD-R disc, in  
triplicate, containing a file pto\_PLACENTA.txt, created 24  
25 January 2001, having 26,548,337 bytes. The Sequence  
Listing contained in said file on said disc is incorporated  
herein by reference in its entirety.

Field of the Invention

30

The present invention relates to genome-derived  
single exon microarrays useful for verifying the expression  
of regions of genomic DNA predicted to encode protein. In  
particular, the present invention relates to unique genome-  
35 derived single exon nucleic acid probes expressed in human



placenta and single exon nucleic acid microarrays that include such probes.

### Background of the Invention

5           For almost two decades following the invention of general techniques for nucleic acid sequencing, Sanger et al., *Proc. Natl. Acad. Sci. USA* 70(4):1209-13 (1973); Gilbert et al., *Proc. Natl. Acad. Sci. USA* 70(12):3581-4 (1973), these techniques were used principally as tools to  
10 further the understanding of proteins - known or suspected - about which a basic foundation of biological knowledge had already been built. In many cases, the cloning effort that preceded sequence identification had been both informed and directed by that antecedent  
15 biological understanding.

          For example, the cloning of the T cell receptor for antigen was predicated upon its known or suspected cell type-specific expression, by its suspected membrane association, and by the predicted assembly of its gene via  
20 T cell-specific somatic recombination. Subsequent sequencing efforts at once confirmed and extended understanding of this family of proteins. Hedrick et al., *Nature* 308(5955):153-8 (1984).

          More recently, however, the development of high  
25 throughput sequencing methods and devices, in concert with large public and private undertakings to sequence the human and other genomes, has altered this investigational paradigm: today, sequence information often precedes understanding of the basic biology of the encoded protein  
30 product.

          One of the approaches to large-scale sequencing is predicated upon the proposition that expressed sequences - that is, those accessible through isolation of mRNA - are of greatest initial interest. This "expressed  
35 sequence tag" ("EST") approach has already yielded vast

amounts of sequence data (see for example Adams et al.,  
*Science* 252:1651 (1991); Williamson, *Drug Discov. Today*  
4:115 (1999)). For nucleic acids sequenced by this  
approach, often the only biological information that is  
5 known *a priori* with any certainty is the likelihood of  
biologic expression itself. By virtue of the species and  
tissue from which the mRNA had originally been obtained,  
most such sequences are also annotated with the identity of  
the species and at least one tissue in which expression  
10 appears likely.

More recently, the pace of genomic sequencing has  
accelerated dramatically. When genomic DNA serves as the  
initial substrate for sequencing efforts, expression cannot  
be presumed; often the only *a priori* biological information  
15 about the sequence includes the species and chromosome (and  
perhaps chromosomal map location) of origin.

With the ever-accelerating pace of sequence  
accumulation by directed, EST, and genomic sequencing  
approaches — and in particular, with the accumulation of  
20 sequence information from multiple genera, from multiple  
species within genera, and from multiple individuals within  
a species — there is an increasing need for methods that  
rapidly and effectively permit the functions of nucleic  
sequences to be elucidated. And as such functional  
25 information accumulates, there is a further need for  
methods of storing such functional information in  
meaningful and useful relationship to the sequence itself;  
that is, there is an increasing need for means and  
apparatus for annotating raw sequence data with known or  
30 predicted functional information.

Although the increase in the pace of genomic  
sequencing is due in large part to technological changes in  
sequencing strategies and instrumentation, Service, *Science*  
280:995 (1998); Pennisi, *Science* 283: 1822-1823 (1999),  
35 there is an important functional motivation as well.

While it was understood that the EST approach would rarely be able to yield sequence information about the noncoding portions of the genome, it now also appears the EST approach is capable of capturing only a fraction of a genome's actual expression complexity.

For example, when the *C. elegans* genome was fully sequenced, gene prediction algorithms identified over 19,000 potential genes, of which only 7,000 had been found by EST sequencing. *C. elegans* Sequencing Consortium, *Science* 282:2012 (1998). Analogously, the recently completed sequence of chromosome 2 of *Arabidopsis* predicts over 4000 genes, Lin et al., *Nature*, 402:761 (1999), of which only about 6% had previously been identified via EST sequencing efforts. Although the human genome has the greatest depth of EST coverage, it is still woefully short of surrendering all of its genes. One recent estimate suggests that the human genome contains more than 146,000 genes, which would at this point leave greater than half of the genes undiscovered. It is now predicted that many genes, perhaps 20 to 50%, will only be found by genomic sequencing.

There is, therefore, a need for methods that permit the functional regions of genomic sequence – and most importantly, but not exclusively, regions that function to encode genes – to be identified.

Much of the coding sequence of the human genome is not homologous to known genes, making detection of open reading frames ("ORFs") and predictions of gene function difficult. Computational methods exist for predicting coding regions in eukaryotic genomes. Gene prediction programs such as GRAIL and GRAIL II, Uberbacher et al., *Proc. Natl. Acad. Sci. USA* 88(24):11261-5 (1991); Xu et al., *Genet. Eng.* 16:241-53 (1994); Uberbacher et al., *Methods Enzymol.* 266:259-81 (1996); GENEFINDER, Solovyev et al., *Nucl. Acids. Res.* 22:5156-63 (1994); Solovyev et al.,

*Ismb* 5:294-302 (1997); and GENESCAN, Burge et al., *J. Mol. Biol.* 268:78-94 (1997), predict many putative genes without known homology or function. Such programs are known, however, to give high false positive rates. Burset et al., *Genomics* 34:353-367 (1996). Using a consensus obtained by a plurality of such programs is known to increase the reliability of calling exons from genomic sequence. Ansari-Lari et al., *Genome Res.* 8(1):29-40 (1998)

Identification of functional genes from genomic data remains, however, an imperfect art. For example, in reporting the full sequence of human chromosome 21, the Chromosome 21 Mapping and Sequencing Consortium reports that prior bioinformatic estimates of human gene number may need to be revised substantially downwards. *Nature* 405:311-199 (2000); Reeves, *Nature* 405:283-284 (2000).

Thus, there is a need for methods and apparatus that permit the functions of the regions identified bioinformatically - and specifically, that permit the expression of regions predicted to encode protein - readily to be confirmed experimentally.

Recently, the development of nucleic acid microarrays has made possible the automated and highly parallel measurement of gene expression. Reviewed in Schena (ed.), DNA Microarrays : A Practical Approach (Practical Approach Series), Oxford University Press (1999) (ISBN: 0199637768); *Nature Genet.* 21(1)(suppl):1 - 60 (1999); Schena (ed.), Microarray Biochip: Tools and Technology, Eaton Publishing Company/BioTechniques Books Division (2000) (ISBN: 1881299376).

It is common for microarrays to be derived from cDNA/EST libraries, either from those previously described in the literature, such as those from the I.M.A.G.E. consortium, Lennon et al., *Genomics* 33(1):151-2 (1996), or from the construction of "problem specific" libraries targeted at a particular biological question, R.S. Thomas

et al., *Cancer Res.* (in press). Such microarrays by definition can measure expression only of those genes found in EST libraries, and thus have not been useful as probes for genes discovered solely by genomic sequencing.

5           The utility of using whole genome nucleic acid microarrays to answer certain biological questions has been demonstrated for the yeast *Saccharomyces cerevisiae*. De Risi et al., *Science* 278:680 (1997). The vast majority of yeast nuclear genes, approximately 95% however, are single  
10 exon genes, i.e., lack introns, Lopez et al., *RNA* 5:1135-1137 (1999); Goffeau et al., *Science* 274:563-67 (1996), permitting coding regions more readily to be identified. Whole genome nucleic acid microarrays have not generally been used to probe gene expression from more complex  
15 eukaryotic genomes, and in particular from those averaging more than one intron per gene.

          Given the substantial impact on human morbidity and mortality of diseases directly caused by genetic defect, and given the profound influence of genetic factors on the  
20 predisposition, onset, and/or aggressiveness of most, if not all human diseases, there has long been interest in efficient and safe means for early detection of gene defects and polymorphisms that cause, are associated with, or are implicated in development of disease.

25           Recently, techniques have been developed that permit direct sampling of placenta earlier in pregnancy. There is a need for methods and apparatus that permit analysis of placenta samples for the prediction and diagnosis of diseases caused by genetic defect,  
30 particularly those with polygenic etiology.

#### Summary of the Invention

35           The present invention solves these and other

problems in the art by providing methods and apparatus for predicting, confirming, and displaying functional information derived from genomic sequence. The present invention also provides apparatus for verifying the  
5 expression of putative genes identified within genomic sequence.

In particular, the invention provides novel genome-derived single exon nucleic acid microarrays useful for verifying the expression of putative genes identified  
10 within genomic sequence.

The present invention also provides compositions and kits for the ready production of nucleic acids identical in sequence to, or substantially identical in sequence to, probes on the genome-derived single exon  
15 microarrays of the present invention.

Accordingly, in a first aspect of the invention, there is provided a spatially-addressable set of single exon nucleic acid probes for measuring gene expression in a sample derived from human placenta, comprising a plurality  
20 of single exon nucleic acid probes according to any one of the nucleotide sequences set out in SEQ ID NOS: 1 - 13,232 or a complementary sequence, or a portion of such a sequence.

By plurality is meant at least two, suitably at least 20, most suitably at least 100, preferably at least  
25 1000 and, most preferably, upto 5000.

In one embodiment of the first aspect, each of said plurality of probes is separately and addressably amplifiable.

30 In an alternative embodiment, each of said plurality of probes is separately and addressably isolatable from said plurality.

In a preferred embodiment, each of said plurality of probes is amplifiable using at least one common primer.  
35 Preferably, each of said plurality of probes is amplifiable

using a first and a second common primer.

In yet another embodiment, said set of single exon nucleic acid probes comprises between 50 - 20,000 probes, for example, 50 - 5000.

5 Suitably, said set of single exon nucleic acid probes comprises at least 50 - 1000 discrete single exon nucleic acid probes having a sequence as set out in any of SEQ ID NOS.: 1 - 26,232 or a complimentary sequence, or a portion of such a sequence.

10 Preferably, the average length of the single exon nucleic acid probes is between 200 and 500 bp. It is preferred that the average length should be at least 200bp, suitably at least 250bp, most suitably at least 300bp, preferably at least 400bp and, most preferably, 500 bp.

15 In another embodiment, the single exon nucleic acid probes lack prokaryotic and bacteriophage vector sequence. It is preferred that at least 50%, suitably at least 60%, most suitably at least 70%, preferably at least 75%, more preferably at least 80, 85, 90, 95 or 99% of said  
20 single exon nucleic acid probes lack prokaryotic and bacteriophage vector sequence.

In another preferred embodiment, said single exon nucleic acid lack homopolymeric stretches of A or T. It is preferred that at least 50%, suitably at least 60%, most  
25 suitably at least 70%, preferably at least 75%, more preferably at least 80, 85, 90, 95 or 99% of said single exon nucleic acid probes lack homopolymeric stretches of A or T.

Preferably, a spatially-addressable set of single  
30 exon nucleic acid probes in accordance with the first aspect of the invention is addressably disposed upon a substrate.

Suitable substrates include a filter membrane which may, preferably, be nitrocellulose or nylon. The  
35 nylon may preferably, be positively-charged. Other suitable

substrates include glass, amorphous silicon, crystalline silicon, and plastic. Further suitable materials include polymethylacrylic, polyethylene, polypropylene, polyacrylate, polymethylmethacrylate, polyvinylchloride, 5 polytetrafluoroethylene, polystyrene, polycarbonate, polyacetal, polysulfone, celluloseacetate, cellulosenitrate, nitrocellulose, and mixtures thereof.

In a second aspect of the invention, there is provided a microarray comprising a spatially addressable 10 set of single exon nucleic acid probes in accordance with the first aspect of the invention.

In one embodiment, a genome-derived single-exon microarray is packaged together with such an ordered set of amplifiable probes corresponding to the probes, or one or 15 more subsets of probes, thereon. In alternative embodiments, the ordered set of amplifiable probes is packaged separately from the genome-derived single exon microarray.

In another aspect, the invention provides genome- 20 derived single exon nucleic acid probes useful for gene expression analysis, and particularly for gene expression analysis by microarray. In particular embodiments of this aspect, the present invention provides human single-exon probes that include specifically-hybridizable fragments of 25 SEQ ID Nos. 13,233 - 26,232, wherein the fragment hybridizes at high stringency to an expressed human gene. In particular embodiments, the invention provides single exon probes comprising SEQ ID Nos. 1 - 13,232.

Accordingly, in a third aspect of the invention, 30 there is provided a single exon nucleic acid probe for measuring human gene expression in a sample derived from human placenta which is a nucleic acid molecule comprising a nucleotide sequence as set out in any of SEQ ID NOS.: 1 - 13,232 or a complementary sequence or a fragment thereof 35 wherein said probe hybridizes at high stringency to a



nucleic acid expressed in the human placenta.

In one embodiment, a single exon nucleic acid probe in accordance with the third aspect comprises a nucleotide sequence as set out in any of SEQ ID NOs.:

5 13,233 - 26,232 or a complementary sequence or a fragment thereof.

In a fourth aspect of the invention, there is provided a single exon nucleic acid probe for measuring human gene expression in a sample derived from human  
10 placenta which is a nucleic acid molecule having a sequence encoding a peptide comprising a peptide sequence as set out in any of SEQ ID NOs.: 26,233 - 38,837 or a complementary sequence or a fragment thereof wherein said probe hybridizes at high stringency to a nucleic acid expressed  
15 in the human placenta.

Preferably, a single exon nucleic acid probe in accordance with the third or fourth aspects of the invention comprises between at least 15 and 50 contiguous nucleotides of said SEQ ID NO:. It is preferred that the  
20 single exon nucleic acid probe comprises at least 15, suitably at least 20, more suitably at least 25 or preferably at least 50 contiguous nucleotides of said SEQ ID NO:.

In another preferred embodiment, a single exon  
25 nucleic acid probe in accordance with the third or fourth aspects of the invention is between 3kb and 25kb in length. It is preferred that said probe is no more than 3kb, suitably no more than 5kb, more suitably no more than 10kb, preferably 15kb, more preferably 20kb or, most preferably,  
30 no more than 20kb in length.

Preferably, a single exon nucleic acid probe in accordance with either the fifth or sixth aspect of the invention is DNA, preferably single-stranded DNA, RNA or PNA.

35 In another embodiment of either the third or

fourth aspect of the invention, a single exon nucleic acid probe is detectably labeled. Suitable detectable labels include a radionuclide, a fluorescent label or a first member of a specific binding pair. Suitable fluorescent labels include dyes such as cyanine dyes, preferably Cy3 and Cy5 although other suitable dyes will be known to those skilled in the art.

In a particularly preferred embodiment, a single exon nucleic acid probe in accordance with either the third or fourth aspect of the invention lacks prokaryotic and bacteriophage vector sequence. In yet another embodiment, a single exon nucleic acid probe in accordance with either the third or fourth aspect of the invention lacks homopolymeric stretches of A or T.

In a fifth aspect of the invention, there is provided an amplifiable nucleic acid composition, comprising:

the single exon nucleic acid probe in accordance with either of the third or fourth aspects of the invention; and at least one nucleic acid primer;

wherein said at least one primer is sufficient to prime enzymatic amplification of said probe.

In an sixth aspect of the invention, there is provided a method of measuring gene expression in a sample derived from human placenta, comprising:

contacting the single exon microarray in accordance with the second aspect of the invention, with a first collection of detectably labeled nucleic acids, said first collection of nucleic acids derived from mRNA of human placenta; and then

measuring the label detectably bound to each probe of said microarray.

In a seventh aspect of the invention, there is provided a method of identifying exons in a eukaryotic genome, comprising:

algorithmically predicting at least one exon from genomic sequence of said eukaryote; and then

detecting specific hybridization of detectably labeled nucleic acids to a single exon probe,

5 wherein said detectably labeled nucleic acids are derived from mRNA from the placenta of said eukaryote, said probe is a single exon probe having a fragment identical in sequence to, or complementary in sequence to, said predicted exon, said probe is included within a single exon  
10 microarray in accordance with the first aspect of the invention, and said fragment is selectively hybridizable at high stringency.

In a eighth aspect of the invention, there is provided a method of assigning exons to a single gene,  
15 comprising:

identifying a plurality of exons from genomic sequence in accordance with the seventh aspect of the invention; and then

measuring the expression of each of said exons in  
20 a plurality of tissues and/or cell types using hybridization to single exon microarrays having a probe with said exon,

wherein a common pattern of expression of said exons in said plurality of tissues and/or cell types  
25 indicates that the exons should be assigned to a single gene.

In an ninth aspect of the invention, there is provided a nucleic acid sequence as set out in any of SEQ ID NOs: 1 - 26,232 wherein said sequence encodes a peptide.

30 In a tenth aspect of the invention, there is provided a peptide encoded by a sequence comprising a sequence as set out in any of SEQ ID NOs: 13,233 - 26,232, or a complementary sequence or coding portion thereof.

In a preferred embodiment, a peptide may be  
35 encoded by a sequence comprising a sequence set out in any

of SEQ ID NOS.: 1 -13,232 .

In a further aspect, the invention provides peptides comprising an amino acid sequence translated from the DNA fragments, said amino acid sequences comprising SEQ  
5 ID NOS.: 26,233 - 38,837.

Accordingly in a eleventh aspect of the invention there is provided a peptide comprising a sequence as set out in any of SEQ ID NOS: 26,233 - 38,837, or fragment thereof.

10 In another aspect, the invention provides means for displaying annotated sequence, and in particular, for displaying sequence annotated according to the methods and apparatus of the present invention. Further, such display can be used as a preferred graphical user interface for  
15 electronic search, query, and analysis of such annotated sequence.

### Detailed Description of the Invention

20

#### Definitions

As used herein, the term "microarray" and phrase "nucleic acid microarray" refer to a substrate-bound collection of plural nucleic acids, hybridization to each  
25 of the plurality of bound nucleic acids being separately detectable. The substrate can be solid or porous, planar or non-planar, unitary or distributed.

As so defined, the term "microarray" and phrase "nucleic acid microarray" include all the devices so called  
30 in Schena (ed.), DNA Microarrays: A Practical Approach (Practical Approach Series), Oxford University Press (1999) (ISBN: 0199637768); Nature Genet. 21(1)(suppl):1 - 60 (1999); and Schena (ed.), Microarray Biochip: Tools and Technology, Eaton Publishing Company/BioTechniques Books  
35 Division (2000) (ISBN: 1881299376). As so defined, the

term "microarray" and phrase "nucleic acid microarray" further include substrate-bound collections of plural nucleic acids in which the nucleic acids are distributably disposed on a plurality of beads, rather than on a unitary planar substrate, as is described, *inter alia*, in Brenner et al., *Proc. Natl. Acad. Sci. USA* 97(4):166501670 (2000); in such case, the term "microarray" and phrase "nucleic acid microarray" refer to the plurality of beads in aggregate.

10 As used herein with respect to a nucleic acid microarray, the term "probe" refers to the nucleic acid that is, or is intended to be, bound to the substrate; in such context, the term "target" thus refers to nucleic acid intended to be bound thereto by Watson-Crick complementarity. As used herein with respect to solution  
15 phase hybridization, the term "probe" refers to the nucleic acid of known sequence that is detectably labeled.

As used herein, the expression "probe comprising SEQ ID NO.", and variants thereof, intends a nucleic acid probe, at least a portion of which probe has either (i) the  
20 sequence directly as given in the referenced SEQ ID NO., or (ii) a sequence complementary to the sequence as given in the referenced SEQ ID NO., the choice as between sequence directly as given and complement thereof dictated by the  
25 requirement that the probe hybridize to mRNA.

As used herein, the term "open reading frame" and the equivalent acronym "ORF" refer to that portion of an exon that can be translated in its entirety into a sequence of contiguous amino acids i.e. a nucleic acid sequence  
30 that, in at least one reading frame, does not possess stop codons; the term does not require that the ORF encode the entirety of a natural protein.

As used herein, the term "amplicon" refers to a PCR product amplified from human genomic DNA, containing  
35 the predicted exon.

As used herein the term "exon" refers to the consensus prediction of the various exon and gene predicting algorithms i.e. a nucleic acid sequence bioinformatically predicted to encode a portion of a natural protein.

As used herein, the term "peptide" refers to a sequence of amino acids. The sequences referred to as PEPTIDE SEQ ID NOS.: are the predicted peptide sequences that would be translated from one of the exons, or a portion thereof set out in exon SEQ ID NOS.:. The codons encoding the peptide are wholly contained within the exon.

As used herein, a "portions" of a defined nucleotide sequence or sequences can be and, preferably, are fragments unique to that sequence or to one or a combination of those sequences. A fragment unique to a nucleic acid molecule is one that is a signature for the larger nucleic acid molecule.

As used herein, the phrase "expression of a probe" and its linguistic variants means that the ORF present within the probe, or its complement, is present within a target mRNA.

As used herein, "stringent conditions" refers to parameters well known to those skilled in the art. When a nucleic acid molecule is said to be hybridisable to another of a given sequence under "stringent conditions" it is meant that it is homologous to the given sequence.

As used herein, the phrase "specific binding pair" intends a pair of molecules that bind to one another with high specificity. Binding pairs are said to exhibit specific binding when they exhibit avidity of at least  $10^7$ , preferably at least  $10^8$ , more preferably at least  $10^9$  liters/mole. Nonlimiting examples of specific binding pairs are: antibody and antigen; biotin and avidin; and biotin and streptavidin.

As used herein with respect to the visual display

of annotated genomic sequence, the term "rectangle" means any geometric shape that has at least a first and a second border, wherein the first and second borders each are capable of mapping uniquely to a point of another visual object of the display.

As used herein, a "Mondrian" means a visual display in which a single genomic sequence is annotated with predicted and experimentally confirmed functional information.

10

### Brief Description of the Drawings

The present invention is further illustrated with reference to the following non-limiting figures and examples in which:

FIG. 1 illustrates a process for predicting functional regions from genomic sequence, confirming the functional activity of such regions experimentally, and associating and displaying the data so obtained in meaningful and useful relationship to the original sequence data;

FIG. 2 further elaborates that portion of the process schematized in FIG. 1 for predicting functional regions from genomic sequence;

FIG. 3 illustrates a Mondrian visual display;

FIG. 4 presents a Mondrian showing a hypothetical annotated genomic sequence;

FIG. 5 is a histogram showing the distribution of ORF length and PCR products as obtained, with ORF length shown in black and PCR product length shown in dotted lines;

FIG. 6 is a histogram showing the distribution, among exons predicted according to the methods described, of expression as measured using simultaneous two color

hybridization to a genome-derived single exon microarray. The graph shows the number of sequence-verified products that were either not expressed ("0"), expressed in one or more but not all tested tissues ("1" - "9"), or expressed  
5 in all tissues tested ("10");

FIG. 7 is a pictorial representation of the expression of verified sequences that showed expression with signal intensity greater than 3 in at least one tissue, with: FIG. 7A showing the expression as measured by  
10 microarray hybridization in each of the 10 measured tissues, and the expression as measured "bioinformatically" by query of EST, NR and SwissProt databases; with FIG. 7B showing the legend for display of physical expression (ratio) in FIG. 7A; and with FIG. 7C showing the legend for  
15 scoring EST hits as depicted in FIG. 7A;

FIG. 8 shows a comparison of normalized CY3 signal intensity for arrayed sequences that were identical to sequences in existing EST, NR and SwissProt databases or that were dissimilar (unknown), where black denotes the  
20 signal intensity for all sequence-verified products with a BLAST Expect ("E") value of greater than  $1e-30$  ( $1 \times 10^{-30}$ ) ("unknown") and a dotted line denotes sequence-verified spots with a BLAST expect ("E") value of less than  $1e-30$  ( $1 \times 10^{-30}$ ) ("known");

25 FIG. 9 presents a Mondrian of BAC AC008172 (bases 25,000 to 130,000), containing the carbamyl phosphate synthetase gene (AF154830.1); and

FIG. 10 is a Mondrian of BAC A049839.

30

Methods and Apparatus for Predicting, Confirming,  
Annotating, and Displaying Functional Regions From Genomic  
Sequence Data

35

FIG. 1 is a flow chart illustrating in broad



outline a process for predicting functional regions from genomic sequence, confirming and characterizing the functional activity of such regions experimentally, and then associating and displaying the information so obtained in meaningful and useful relationship to the original sequence data.

The initial input into process 10 of the present invention is drawn from one or more databases 100 containing genomic sequence data. Because genomic sequence is usually obtained from subgenomic fragments, the sequence data typically will be stored in a series of records corresponding to these subgenomic sequenced fragments. Some fragments will have been catenated to form larger contiguous sequences ("contigs"); others will not. A finite percentage of sequence data in the database will typically be erroneous, consisting *inter alia* of vector sequence, sequence created from aberrant cloning events, sequence of artificial polylinkers, and sequence that was erroneously read.

Each sequence record in database 100 will minimally contain as annotation a unique sequence identifier (accession number), and will typically be annotated further to identify the date of accession, species of origin, and depositor. Because database 100 can contain nongenomic sequence, each sequence will typically be annotated further to permit query for genomic sequence. Chromosomal origin, optionally with map location, can also be present. Data can be, and over time increasingly will be, further annotated with additional information, in part through use of the present invention, as described below. Annotation can be present within the data records, in information external to database 100 and linked to the records thereto, or through a combination of the two.

Databases useful as genomic sequence database 100 in the present invention include GenBank, and particularly

include several divisions thereof, including the  
htgs(draft), NT (nucleotide, command line), and NR  
(nonredundant) divisions. GenBank is produced by the  
National Institutes of Health and is maintained by the  
5 National Center for Biotechnology Information (NCBI).  
Databases of genomic sequence from species other than  
human, such as mouse, rat, Arabidopsis, *C. elegans*, *C.*  
*briggsii*, *Drosophila*, zebra fish, and other higher  
eukaryotic organisms will also prove useful as genomic  
10 sequence database 100.

Genomic sequence obtained by query of genomic  
sequence database 100 is then input into one or more  
processes 200 for identification of regions therein that  
are predicted to have a biological function as specified by  
15 the user. Such functions include, but are not limited to,  
encoding protein, regulating transcription, regulating  
message transport after transcription into mRNA, regulating  
message splicing after transcription into mRNA, of  
regulating message degradation after transcription into  
20 mRNA, and the like. Other functions include directing  
somatic recombination events, contributing to chromosomal  
stability or movement, contributing to allelic exclusion or  
X chromosome inactivation, and the like.

The particular genomic sequence to be input into  
25 process 200 will depend upon the function for which  
relevant sequence is to be identified as well as upon the  
approach chosen for such identification. Process step 200  
can be iterated to identify different functions within a  
given genomic region. In such case, the input often will  
30 be different for the several iterations.

Sequences predicted to have the requisite  
function by process 200 are then input into process 300,  
where a subset of the input sequences suitable for  
experimental confirmation is identified. Experimental  
35 confirmation can involve physical and/or bioinformatic

assay. Where the subsequent experimental assay is bioinformatic, rather than physical, there are fewer constraints on the sequences that can be tested, and in this latter case therefore process 300 can output the entirety of the input sequence.

The subset of sequences output from process 300 is then used in process 400 for experimental verification and characterization of the function predicted in process 200, which experimental verification can, and often will, include both physical and bioinformatic assay.

Process 500 annotates the sequence data with the functional information obtained in the physical and/or bioinformatic assays of process 400. Such annotation can be done using any technique that usefully relates the functional information to the sequence, as, for example, by incorporating the functional data into the sequence data record itself, by linking records in a hierarchical or relational database, by linking to external databases, by a combination thereof, or by other means well known within the database arts. The data can even be submitted for incorporation into databases maintained by others, such as GenBank, which is maintained by NCBI.

As further noted in FIG. 1, additional annotation can be input into process 500 from external sources 600.

The annotated data is then displayed in process 800, either before, concomitantly with, or after optional storage 700 on nontransient media, such as magnetic disk, optical disc, magnetooptical disk, flash memory, or the like.

FIG. 1 shows that the experimental data output from process 400 can be used in each preceding step of process 10: e.g., facilitating identification of functional sequences in process 200, facilitating identification of an experimentally suitable subset thereof in process 300, and facilitating creation of physical and/or informational

substrates for, and performance of subsequent assay, of functional sequences in process 400.

Information from each step can be passed directly to the succeeding process, or stored in permanent or interim form prior to passage to the succeeding process. Often, data will be stored after each, or at least a plurality, of such process steps. Any or all process steps can be automated.

FIG. 2 further elaborates the prediction of functional sequence within genomic sequence according to process 200.

Genomic sequence database 100 is first queried for genomic sequence.

The sequence required to be returned by query 20 will depend, in the first instance, upon the function to be identified.

For example, genomic sequences that function to encode protein can be identified *inter alia* using gene prediction approaches, comparative sequence analysis approaches, or combinations of the two. In gene prediction analysis, sequence from one genome is input into process 200 where at least one, preferably a plurality, of algorithmic methods are applied to identify putative coding regions. In comparative sequence analysis, by contrast, corresponding, e.g., syntenic, sequence from a plurality of sources, typically a plurality of species, is input into process 200, where at least one, possibly a plurality, of algorithmic methods are applied to compare the sequences and identify regions of least variability.

The exact content of query 20 will also depend upon the database queried. For example, if the database contains both genomic and nongenomic sequence, perhaps derived from multiple species, and the function to be determined is protein coding regions in human genomic sequence, the query will accordingly require that the

sequence returned be genomic and derived from humans.

Query 20 can also incorporate criteria that compel return of sequence that meets operative requirements of the subsequent analytical method. Alternatively, or in  
5 addition, such operative criteria can be enforced in subsequent preprocess step 24.

For example, if the function sought to be identified is protein coding, query 20 can incorporate criteria that return from genomic sequence database 100  
10 only those sequences present within contigs sufficiently long as to have obviated substantial fragmentation of any given exon among a plurality of separate sequence fragments.

Such criteria can, for example, consist of a  
15 required minimal individual genomic sequence fragment length, such as 10 kb, more typically 20 kb, 30 kb, 40kb, and preferably 50 kb or more, as well as an optional further or alternative requirement that sequence from any given clone, such as a bacterial artificial chromosome  
20 ("BAC"), be presented in no more than a finite maximal number of fragments, such as no more than 20 separate pieces, more typically no more than 15 fragments, even more typically no more than about 10 - 12 fragments.

Results using the present invention have shown  
25 that genomic sequence from bacterial artificial chromosomes (BACs) is sufficient for gene prediction analysis according to the present invention if the sequence is at least 50 kb in length, and if additionally the sequence from any given BAC is presented in fewer than 15, and preferably fewer  
30 than 10, fragments. Accordingly, query 20 can incorporate a requirement that data accessioned from BAC sequencing be in fewer than 15, preferably fewer than 10, fragments.

An additional criterion that can be incorporated into the query can be the date, or range of dates, of  
35 sequence accession. Although the process has been

described above as if genomic sequence database 100 were static, it is of course understood that the genomic sequence databases need not be static, and indeed are typically updated on a frequent, even hourly, basis. Thus, as further described in Examples 1 and 2, *infra*, it is possible to query the database for newly added sequence, either newly added after an absolute date, or newly added relative to a prior analysis performed using the methods and apparatus of the present invention. In this way, the process herein described can incorporate a dynamic, temporal component.

One utility of such temporal limitation is to identify, from newly accessioned genomic sequence, the presence of novel genes, particularly those not previously identified by EST sequencing (or other sequencing efforts that are similarly based upon gene expression). As further described in Example 1, such an approach has shown that newly accessioned human genomic sequence, when analyzed for sequences that function to encode protein, readily identifies genes that are novel over those in existing EST and other expression databases. This makes the methods of the present invention extremely powerful gene discovery tools. And as would be appreciated, such gene discovery can be performed using genomic sequence from species other than human.

If query 20 incorporates multiple criteria, such as above-described, the multiple criteria can be performed as a series of separate queries or as a single query, depending in part upon the query language, the complexity of the query, and other considerations well known in the database arts.

If query 20 returns no genomic sequence meeting the query criteria, the negative result can be reported by process 22, and process 200 (and indeed, entire process 10) ended 23, as shown. Alternatively, or in addition to

report and termination of the initial inquiry, a new query  
20 can be generated that takes into account the initial  
negative result.

When query 20 returns sequence meeting the query  
5 criteria, the returned sequence is then passed to optional  
preprocessing 24, suitable and specific for the desired  
analytical approach and the particular analytical methods  
thereof to be used in process 25.

Preprocessing 24 can include processes suitable  
10 for many approaches and methods thereof, as well as  
processes specifically suited for the intended subsequent  
analysis.

Preprocessing 24 suitable for most approaches and  
methods will include elimination of sequence irrelevant to,  
15 or that would interfere with, the subsequent analysis.  
Such sequence includes repetitive sequence, such as Alu  
repeats and LINE elements, vector sequence, artificial  
sequence, such as artificial polylinkers, and the like.  
Such removal can readily be performed by identification and  
20 subsequent masking of the undesired sequence.

Identification can be effected by comparing the  
genomic sequence returned by query 20 with public or  
private databases containing known repetitive sequence,  
vector sequence, artificial sequence, and other artifactual  
25 sequence. Such comparison can readily be done using  
programs well known in the art, such as CROSS\_MATCH, or by  
proprietary sequence comparison programs the engineering of  
which is well within the skill in the art.

Alternatively, or in addition, undesirable,  
30 including artifactual, sequence can be identified  
algorithmically without comparison to external databases  
and thereafter removed. For example, synthetic polylinker  
sequence can be identified by an algorithm that identifies  
a significantly higher than average density of known  
35 restriction sites. As another example, vector sequence can

be identified by algorithms that identify nucleotide or codon usage at variance with that of the bulk of the genomic sequence.

Once identified, undesired sequence can be removed. Removal can usefully be done by masking the undesired sequence as, for example, by converting the specific nucleotide references to one that is unrecognized by the subsequent bioinformatic algorithms, such as "X". Alternatively, but at present less preferred, the undesired sequence can be excised from the returned genomic sequence, leaving gaps.

Preprocessing 24 can further include selection from among duplicative sequences of that one sequence of highest quality. Higher quality can be measured as a lower percentage of, fewest number of, or least densely clustered occurrence of ambiguous nucleotides, defined as those nucleotides that are identified in the genomic sequence using symbols indicating ambiguity. Higher quality can also or alternatively be valued by presence in the longest contig.

Preprocessing 24 can, and often will, also include formatting of the data as specifically appropriate for passage to the analytical algorithms of process 25. Such formatting can and typically will include, *inter alia*, addition of a unique sequence identifier, either derived from the original accession number in genomic sequence database 100, or newly applied, and can further include additional annotation. Formatting can include conversion from one to another sequence listing standard, such as conversion to or from FASTA or the like, depending upon the input expected by the subsequent process.

Preprocessing, which can be optional depending upon the function desired to be identified and the informational requirements of the methods for effecting such identification, is followed by sequence processing 25,



where sequences with the desired function are identified within the genomic sequence.

As mentioned above, such functions can include, but are not limited to, encoding protein, regulating transcription, regulating message transport after transcription into mRNA, regulating message splicing after transcription, of regulating message degradation, and the like. Other functions include directing somatic recombination events, contributing to chromosomal stability or movement, contributing to allelic exclusion or X chromosome inactivation, or the like.

The methods of the present invention are particularly useful for gene discovery, that is, for identifying, from genomic sequence, regions that function to encode genes, and in a particularly useful embodiment, for identifying regions that function to encode genes not hitherto identified by expression-based or directed cloning and sequencing. In conjunction with verification using the novel single exon microarrays of the present invention, as further described below, the methods herein described become powerful gene discovery tools.

Accordingly, in a preferred embodiment of the present invention, process 25 is used to identify putative coding regions. Two preferred approaches in process 25 for identifying sequence that encodes putative genes are gene prediction and comparative sequence analysis.

Gene prediction can be performed using any of a number of algorithmic methods, embodied in one or more software programs, that identify open reading frames (ORFs) using a variety of heuristics, such as GRAIL, DICTION, and GENEFINDER. Comparative sequence analysis similarly can be performed using any of a variety of known programs that identify regions with lower sequence variability.

As further described in Example 1, below, gene finding software programs yield a range of results. For

the newly accessioned human genomic sequence input in Example 1, for example, GRAIL identified the greatest percentage of genomic sequence as putative coding region, 2% of the data analyzed; GENEFINDER was second, calling 1%;  
5 and DICTION yielded the least putative coding region, with 0.8% of genomic sequence called as coding region.

Increased reliability can be obtained when consensus is required among several such methods. Although discussed herein particularly with respect to exon calling,  
10 consensus among methods will in general increase reliability of predicting other functions as well.

Thus, as indicated by query 26, sequence processing 25, optionally with preprocessing 24, can be repeated with a different method, with consensus among such  
15 iterations determined and reported in process 27.

Process 27 compares the several outputs for a given input genomic sequence and identifies consensus among the separately reported results. The consensus itself, as well as the sequence meeting that consensus, is then stored  
20 in process 29a, displayed in process 29b, and/or output to process 300 for subsequent identification of a subset thereof suitable for assay.

Multiple levels of consensus can be calculated and reported by process 27. For example, as further  
25 described in Example 1, *infra*, process 27 can report consensus as between all specific pairs of methods of gene prediction, as consensus among any one or more of the pairs of methods of gene prediction, or as among all of the gene prediction algorithms used. Thus, in Example 1, process 27  
30 reported that GRAIL and GENEFINDER programs agreed on 0.7% of genomic sequence, that GRAIL and DICTION agreed on 0.5% of genomic sequence, and that the three programs together agreed on 0.25% of the data analyzed. Put another way, 0.25% of the genomic sequence was identified by all three  
35 of the programs as containing putative coding region.

Furthermore, consensus can be required among different approaches to identifying a chosen function.

For example, if the function desired to be identified is coding of protein sequence, and a first used approach to exon calling is gene prediction, the process can be repeated on the same input sequence, or subset thereof, with another approach, such as comparative sequence analysis. In such a case, where comparative sequence analysis follows gene prediction, the comparison can be performed not only on genomic nucleic acid sequence, but additionally or alternatively can be performed on the predicted amino acid sequence translated from the ORFs prior identified by the gene prediction approach.

Although shown as an iterative process, the multiple analyses required to achieve consensus can be done in series, in parallel, or some combination thereof.

Predicted functional sequence, optionally representing a consensus among a plurality of methods and approaches for determination thereof, is passed to process 300 for identification of a subset thereof for functional assay.

In the preferred embodiment of the methods of the present invention, wherein the function sought to be identified is protein coding, process 300 is used to identify a subset thereof suitable for experimental verification by physical and/or bioinformatic approaches.

For example, putative ORFs identified in process 200 can be classified, or binned, bioinformatically into putative genes. This binning can be based *inter alia* upon consideration of the average number of exons/gene in the species chosen for analysis, upon density of exons that have been called on the genomic sequence, and other empirical rules. Thereafter, one or more among the gene-specific ORFs can be chosen for subsequent use in gene expression assay.

Where such subsequent gene expression assay uses amplified nucleic acid, considerations such as desired amplicon length, primer synthesis requirements, putative exon length, sequence GC content, existence of possible secondary structure, and the like can be used to identify and select those ORFs that appear most likely successfully to amplify. Where subsequent gene expression assay relies upon nucleic acid hybridization, whether or not using amplified product, further considerations involving hybridization stringency can be applied to identify that subset of sequences that will most readily permit sequence-specific discrimination at a chosen hybridization and wash stringency. One particular such consideration is avoidance of putative exons that span repetitive sequence; such sequence can hybridize spuriously to nonspecific message, reducing specific signal in the hybridization.

For bioinformatic assay, there are fewer constraints on the sequences that can be tested experimentally, and in this latter case therefore process 300 can output the entirety of the input sequence.

The subset of sequences identified by process 300 as suitable for use in assay is then used in process 400 to create the physical and/or informational substrate for experimental verification of the predictions made in process 200, and thereafter to assay those substrates.

As mentioned, the methods of the present invention are particularly useful for identifying potential coding regions within genomic sequence. In a preferred embodiment of process 400, therefore, the expression of the sequences predicted to encode protein is verified. The combination of the predictive and experimental methods provides a powerful gene discovery engine.

Thus, in another aspect, the present invention provides methods and apparatus for verifying the expression of putative genes identified within genomic sequence. In

particular, the invention provides a novel method of verifying gene expression in which expression of predicted ORFs is measured and confirmed using a novel type of nucleic acid microarray, the genome-derived single exon  
5 nucleic acid microarrays of the present invention.

Putative ORFs as predicted by a consensus of gene calling, particularly gene prediction, algorithms in process 200, and as further identified as suitable by process 300, are amplified from genomic DNA using the  
10 polymerase chain reaction (PCR). Although PCR is conveniently used, other amplification approaches can also be used.

Amplification schemes can be designed to capture the entirety of each predicted ORF in an amplicon with  
15 minimal additional (that is, intronic or intergenic) sequence. Because ORFs predicted from human genomic sequence using the methods of the present invention differ in length, such an approach results in amplicons of varying length.

20 However, most predicted ORFs are shorter than 500 bp in length, and although amplicons of at least about 100 or 200 base pairs can be immobilized as probes on nucleic acid microarrays, early experimental results using the methods of the present invention have suggested that longer  
25 amplicons, at least about 400 or 500 base pairs, are more effective. Furthermore, certain advantages derive from application to the microarray of amplicons of defined size.

Therefore, amplification schemes can alternatively, and preferably, be designed to amplify  
30 regions of defined size, preferably at least about 300, 400 or 500 bp, centered about each predicted ORF. Such an approach results in a population of amplicons of limited size diversity, but that typically contain intronic and/or intergenic nucleic acid in addition to putative ORF.

35 Conversely, somewhat fewer than 10% of ORFs

predicted from human genomic sequence according to the methods of the present invention exceed 500 bp in length. Portions of such extended ORFs, preferably at least about 300,400 or 500 bp in length, can be amplified. However, it  
5 has been discovered that the percentage success at amplifying pieces of such ORFs is low, and that such putative exons are more effectively amplified when larger fragments, at least about 1000 or 1500 bp, and even as large as 2000 bp are amplified.

10           The putative ORFs selected in process 300 are thus input into one or more primer design programs, such as PRIMER3 (available online for use at <http://www-genome.wi.mit.edu/cgi-bin/primer/> ), with a goal of amplifying at least about 500 base pairs of genomic  
15 sequence centered within or about ORFs predicted to be no more than about 500 bp, or at least about 1000 - 1500 bp of genomic sequence for ORFs predicted to exceed 500 bp in length, and the primers synthesized by standard techniques. Primers with the requisite sequences can be purchased  
20 commercially or synthesized by standard techniques.

Conveniently, a first predetermined sequence can be added commonly to the ORF-specific 5' primer and a second, typically different, predetermined sequence commonly added to each 3' ORF-unique primer. This serves  
25 to immortalize the amplicon, that is, serves to permit further amplification of any amplicon using a single set of primers complementary respectively to the common 5' and common 3' sequence elements. The presence of these "universal" priming sequences further facilitates later  
30 sequence verification, providing a sequence common to all amplicons at which to prime sequencing reactions. The common 5' and 3' sequences further serve to add a cloning site should any of the ORFs warrant further study.

Such predetermined sequence is usefully at least  
35 about 10, 12 or 15 nt in length, and usually does not

exceed about 25 nt in length. The "universal" priming sequences used in the examples presented *infra* were each 16 nt long.

The genomic DNA to be used as substrate for  
5 amplification will come from the eukaryotic species from which the genomic sequence data had originally been obtained, or a closely related species, and can conveniently be prepared by well known techniques from somatic or germline tissue or cultured cells of the  
10 organism. See, e.g., Short Protocols in Molecular Biology : A Compendium of Methods from Current Protocols in Molecular Biology, Ausubel et al. (eds.), 4<sup>th</sup> edition (April 1999), John Wiley & Sons (ISBN: 047132938X) and Maniatis et al., Molecular Cloning : A Laboratory Manual,  
15 2<sup>nd</sup> edition (December 1989), Cold Spring Harbor Laboratory Press (ISBN: 0879693096). Many such prepared genomic DNAs are available commercially, with the human genomic DNAs additionally having certification of donor informed consent.

20 Although the intronic and intergenic material flanking putative coding regions in the amplicons could potentially interfere with hybridizations during microarray experiments, we have found, surprisingly, that differential expression ratios are not significantly affected. Rather,  
25 the predominant effect of exon size is to alter the absolute signal intensity, rather than its ratio. Equally surprising, the art had suggested that single exon probes would not provide sufficient signal intensity for high stringency hybridization analyses; we find that such probes  
30 not only provide adequate signal, but have substantial advantages, as herein described.

After partial purification, as by size exclusion spin column, with or without confirmation as to amplicon quality as by gel electrophoresis, each amplicon (single  
35 exon probe) is disposed in an array upon a support

substrate.

Methods for creating microarrays by deposition and fixation of nucleic acids onto support substrates are well known in the art (Reviewed by Schena et al., see  
5 above).

Typically, the support substrate will be glass, although other materials, such as amorphous or crystalline silicon or plastics. Such plastics include polymethylacrylic, polyethylene, polypropylene,  
10 polyacrylate, polymethylmethacrylate, polyvinylchloride, polytetrafluoroethylene, polystyrene, polycarbonate, polyacetal, polysulfone, celluloseacetate, cellulosenitrate, nitrocellulose, or mixtures thereof, can also be used. Typically, the support will be rectangular,  
15 although other shapes, particularly circular disks and even spheres, present certain advantages. Particularly advantageous alternatives to glass slides as support substrates for array of nucleic acids are optical discs, as described in WO 98/12559.

20 The amplified nucleic acids can be attached covalently to a surface of the support substrate or, more typically, applied to a derivatized surface in a chaotropic agent that facilitates denaturation and adherence by presumed noncovalent interactions, or some combination  
25 thereof.

Robotic spotting devices useful for arraying nucleic acids on support substrates can be constructed using public domain specifications (The MGuide, version 2.0, <http://cmgm.stanford.edu/pbrown/mguide/index.html>), or  
30 can conveniently be purchased from commercial sources (MicroArray GenII Spotter and MicroArray GenIII Spotter, Molecular Dynamics, Inc., Sunnyvale, CA). Spotting can also be effected by printing methods, including those using ink jet technology.

35 As is well known in the art, microarrays



typically also contain immobilized control nucleic acids. For controls useful in providing measurements of background signal for the genome-derived single exon microarrays of the present invention, a plurality of *E. coli* genes can  
5 readily be used. As further described in Example 1, 16 or 32 *E. coli* genes suffice to provide a robust measure of background noise in such microarrays.

As is well known in the art, the amplified product disposed in arrays on a support substrate to create  
10 a nucleic acid microarray can consist entirely of natural nucleotides linked by phosphodiester bonds, or alternatively can include either nonnative nucleotides, alternative internucleotide linkages, or both, so long as complementary binding can be obtained in the hybridization.  
15 If enzymatic amplification is used to produce the immobilized probes, the amplifying enzyme will impose certain further constraints upon the types of nucleic acid analogs that can be generated.

Although particularly described herein as using  
20 high density microarrays constructed on planar substrates, the methods of the present invention for confirming the expression of ORFs predicted from genomic sequence can use any of the known types of microarrays, as herein defined, including lower density planar arrays, and microarrays on  
25 nonplanar, nonunitary, distributed substrates.

For example, gene expression can be confirmed using hybridization to lower density arrays, such as those constructed on membranes, such as nitrocellulose, nylon, and positively-charged derivatized nylon membranes.  
30 Further, gene expression can also be confirmed using nonplanar, bead-based microarrays such as are described in Brenner et al., *Proc. Natl. Acad. Sci. USA* 97(4):166501670 (2000); U.S. Patent No. 6,057,107; and U.S. Patent No. 5,736,330. In theory, a packed collection of such beads  
35 provides in aggregate a higher density of nucleic acid

probe than can be achieved with spotting or lithography techniques on a single planar substrate.

Planar microarrays on solid substrates, however, provide certain useful advantages, including high  
5 throughput and compatibility with existing readers. For example, each standard microscope slide can include at least 1000, typically at least 2000, preferably 5000 and upto 10,000 - 50,000 or more nucleic acid probes of discrete sequence. The number of sequences deposited will  
10 depend on their required application.

Each putative gene can be represented in the array by a single predicted ORF. Alternatively, genes can be represented by more than one predicted ORF. For purposes of measuring differential splicing, more than one  
15 predicted ORF will be provided for a putative gene. And as is well known in the art, each probe of defined sequence, representing a single predicted ORF, can be deposited in a plurality of locations on a single microarray to provide redundancy of signal.

20 The genome-derived single exon microarrays described above differ in several fundamental and advantageous ways from microarrays presently used in the gene expression art, including (1) those created by deposition of mRNA-derived nucleic acids, (2) those created  
25 by *in situ* synthesis of oligonucleotide probes, and (3) those constructed from yeast genomic DNA.

Most nucleic acid microarrays that are in use for study of eukaryotic gene expression have as immobilized probes nucleic acids that are derived - either directly or  
30 indirectly - from expressed message. As discussed above, it is common, for example, for such microarrays to be derived from cDNA/EST libraries, either from those previously described in the literature, see Lennon et al., or from the *de novo* construction of "problem specific"  
35 libraries targeted at a particular biological question,

R.S. Thomas et al., *Cancer Res.* (in press). Such microarrays are herein collectively denominated "EST microarrays".

Such EST microarrays by definition can measure  
5 expression only of those genes found in EST libraries, shown herein to represent only a fraction of expressed genes. Furthermore, such libraries - and thus microarrays based thereupon - are biased by the tissue or cell type of message origin, by the expression levels of the respective  
10 genes within the tissues, and by the ability of the message successfully to have been reverse-transcribed and cloned.

Thus, as further discussed in Example 1, the methods of the present invention enable sequences that do not appear in EST or other expression databases to be  
15 determined - subsequently arrayed for expression measurements could not, therefore, have been represented as probes on an EST microarray. And as further demonstrated in the examples, *infra*, the remaining population of genes identified from genomic sequence by the methods of the  
20 present invention - that is, the one third of sequences that had previously been accessioned in EST or other expression databases - are biased toward genes with higher expression levels.

Representation of a message in an EST and/or cDNA  
25 library depends upon the successful reverse transcription, optionally but typically with subsequent successful cloning, of the message. This introduces substantial bias into the population of probes available for arraying in EST microarrays.

30 In contrast, neither reverse transcription nor cloning is required to produce the probes arrayed on the genome-derived single exon microarrays of the present invention. And although the ultimate deposition of a probe on the genome-derived single exon microarray of the present  
35 invention depends upon a successful amplification from

genomic material, *a priori* knowledge of the sequence of the desired amplicon affords greater opportunity to recover any given probe sequence recalcitrant to amplification than is afforded by the requirement for successful reverse  
5 transcription and cloning of unknown message in EST approaches.

Thus, the genome-derived single exon microarrays of the present invention present a far greater diversity of probes for measuring gene expression, with far less bias,  
10 than do EST microarrays presently used in the art.

As a further consequence of their ultimate origin from expressed message, the probes in EST microarrays often contain poly-A (or complementary poly-T) stretches derived from the poly-A tail of mature mRNA. These homopolymeric  
15 stretches contribute to cross-hybridization, that is, to a spurious signal occasioned by hybridization to the homopolymeric tail of a labeled cDNA that lacks sequence homology to the gene-specific portion of the probe.

In contrast, the probes arrayed in the genome-  
20 derived single exon microarrays of the present invention lack homopolymeric stretches derived from message polyadenylation, and thus can provide more specific signal. Typically, at least about 50, 60 or 75% of the probes on the genome-derived single exon microarrays of the present  
25 invention lack homopolymeric regions consisting of A or T, where a homopolymeric region is defined for purposes herein as stretches of 25 or more, typically 30 or more, identical nucleotides.

A further distinction, which also affects the  
30 specificity of hybridization, is occasioned by the typical derivation of EST microarray probes from cloned material. Because much of the probe material disposed as probes on EST microarrays is excised or amplified from plasmid, phage, or phagemid vectors, EST microarrays typically  
35 include a fair amount of vector sequence, more so when the

probes are amplified, rather than excised, from the vector.

In contrast, the vast majority of probes in the genome-derived single exon microarrays of the present invention contain no prokaryotic or bacteriophage vector sequence, having been amplified directly or indirectly from genomic DNA. Typically, therefore, at least about 50, 60, 70 or 80% or more of individual exon-including probes disposed on a genome-derived single exon microarray of the present invention lack vector sequence, and particularly lack sequences drawn from plasmids and bacteriophage. Preferably, at least about 85, 90 or more than 90% of exon-including probes in the genome-derived single exon microarray of the present invention lack vector sequence. With attention to removal of vector sequences through preprocessing 24, percentages of vector-free exon-including probes can be as high as 95 - 99%. The substantial absence of vector sequence from the genome-derived single exon microarrays of the present invention results in greater specificity during hybridization, since spurious cross-hybridization to a probe vector sequence is reduced.

As a further consequence of excision or amplification of probes from vectors in construction of EST microarrays, the probes arrayed thereon often contain artificial sequence, derived from vector polylinker multiple cloning sites, at both 5' and 3' ends. The probes disposed upon the genome-derived single exon microarrays need have no such artificial sequence appended thereto.

As mentioned above, however, the ORF-specific primers used to amplify putative ORFs can include artificial sequences, typically 5' to the ORF-specific primer sequence, useful for "universal" (that is, independent of ORF sequence) priming of subsequent amplification or sequencing reactions. When such "universal" 5' and/or 3' priming sequences are appended to the amplification primers, the probes disposed upon the

genome-derived single exon microarray will include artificial sequence similar to that found in EST microarrays. However, the genome-derived single exon microarray of the present invention can be made without  
5 such sequences, and if so constructed, presents an even smaller amount of nonspecific sequence that would contribute to nonspecific hybridization.

Yet another consequence of typical use of cloned material as probes in EST microarrays is that such  
10 microarrays contain probes that result from cloning artifacts, such as chimeric molecules containing coding region of two separate genes. Derived from genomic material, typically not thereafter cloned, the probes of the genome-derived single exon microarrays of the present  
15 invention lack such cloning artifacts, and thus provide greater specificity of signal in gene expression measurements.

A further consequence of the cloned origin of probes on many EST microarrays is that the individual  
20 probes often have disparate sizes, which can cause the optimal hybridization stringency to vary among probes on a single microarray. In contrast, as discussed above, the probes arrayed on the genome-derived single exon microarrays of the present invention can readily be  
25 designed to have a narrow distribution in sizes, with the range of probe sizes no greater than about 10% of the average size, typically no greater than about 5% of the average probe size.

Because of their origin from fully- or partially-  
30 spliced message, probes disposed upon EST arrays will often include multiple exons. The percentage of such exon-spanning probes in an EST microarray can be calculated, on average, based upon the predicted number of exons/gene for the given species and the average length of the immobilized  
35 probes. For human genes, the near-complete sequence of

human chromosome 22, Dunham et al., *Nature* 402(6761):489-95 (1999), predicts that human genes average 5.5 exons/gene. Even with probes of 200 - 500 bp, the vast majority of human EST microarray probes include more than one exon.

5 In contrast, by virtue of their origin from algorithmically identified ORFs in genomic sequence, the probes in the genome-derived single exon microarrays of the present invention can consist of individual exons. Thus, in contrast to EST microarrays, at least about 50, 60, 70,  
10 75, 80, 85, 95 or 99% of probes deposited in the genome-derived microarray of the present invention consist of, or include, no more than one predicted ORF.

This provides the ability, not readily achieved using EST microarrays, to use the genome-derived single  
15 exon microarrays of the present invention to measure tissue-specific expression of individual exons, which in turn allows differential splicing events to be detected and characterized, and in particular, allows the correlation of differential splicing to tissue-specific expression  
20 patterns.

Furthermore, the exons that are represented in EST microarrays are often biased toward the 3' or 5' end of their respective genes, since sequencing strategies used for EST identification are so biased. In contrast, no such  
25 3' or 5' bias necessarily inheres in the selection of exons for disposition on the genome-derived single exon microarrays of the present invention.

Conversely, the probes provided on the genome-derived single exon microarrays of the present invention  
30 typically, but need not necessarily, include intronic and/or intergenic sequence that is absent from EST microarrays, which are derived from mature mRNA. Typically, at least about 50, 60, 70, 80 or 90% of the exon-including probes on the genome-derived single exon  
35 microarrays of the present invention include sequence drawn

from noncoding regions. As discussed above, the additional presence of noncoding region does not significantly interfere with measurement of gene expression, and provides the additional opportunity to assay prespliced RNA, and thus measure such phenomena such as nuclear export control.

The genome-derived single exon microarrays of the present invention are also quite different from *in situ* synthesis microarrays, where probe size is severely constrained by inadequacies in the photolithographic synthesis process.

Typically, probes arrayed on *in situ* synthesis microarrays are limited to a maximum of about 25 bp. As a well known consequence, hybridization to such chips must be performed at low stringency. In order, therefore, to achieve unambiguous sequence-specific hybridization results, the *in situ* synthesis microarray requires substantial redundancy, with concomitant programmed arraying for each probe of probe analogues with altered (i.e., mismatched) sequence.

In contrast, the longer probe length of the genome-derived single exon microarrays of the present invention allows much higher stringency hybridization and wash. Typically, therefore, exon-including probes on the genome-derived single exon microarrays of the present invention average at least about 100, 200, 300, 400 or 500 bp in length. By obviating the need for substantial probe redundancy, this approach permits a higher density of probes for discrete exons or genes to be arrayed on the microarrays of the present invention than can be achieved for *in situ* synthesis microarrays.

A further distinction is that the probes in *in situ* synthesis microarrays typically are covalently linked to the substrate surface. In contrast, the probes disposed on the genome-derived microarray of the present invention typically are, but need not necessarily be, bound



noncovalently to the substrate.

Furthermore, the short probe size on *in situ* microarrays causes large percentage differences in the melting temperature of probes hybridized to their complementary target sequence, and thus causes large percentage differences in the theoretically optimum stringency across the array as a whole.

In contrast, the larger probe size in the microarrays of the present invention create lower percentage differences in melting temperature across the range of arrayed probes.

A further significant advantage of the microarrays of the present invention over *in situ* synthesized arrays is that the quality of each individual probe can be confirmed before deposition. In contrast, the quality of probes cannot be assessed on a probe-by-probe basis for the *in situ* synthesized microarrays presently being used.

The genome-derived single exon microarrays of the present invention are also distinguished over, and present substantial benefits over, the genome-derived microarrays from lower eukaryotes such as yeast. Lashkari et al., *Proc. Natl. Acad. Sci. USA* 94:13057-13062 (1997).

Only about 220 - 250 of the 6100 or so nuclear genes in *Saccharomyces cerevisiae* - that is, only about 4 - 5% - have standard, spliceosomal, introns, Lopez et al., *Nucl. Acids Res.* 28:85-86 (2000); Spingola et al., *RNA* 5(2):221-34 (1999). Furthermore, the entire yeast genome has already been sequenced. These two facts permit the ready amplification and disposition of single-ORF amplicons on such microarray without the requirement for antecedent use of gene prediction and/or comparative sequence analyses.

Thus, a significant aspect of the present invention is the ability to identify and to confirm

expression of predicted coding regions in genomic sequence drawn from eukaryotic organisms that have a higher percentage of genes having introns than do yeast such as *Saccharomyces cerevisiae*, particularly in genomic sequence drawn from eukaryotes in which at least about 10, 20 or 50% of protein-encoding genes have introns. In preferred embodiments, the methods and apparatus of the present invention are used to identify and confirm expression of novel genes from genomic sequence of eukaryotes in which the average number of introns per gene is at least about one, two or three or more.

After the physical substrate is prepared, experimental verification of predicted function is performed.

In a preferred embodiment of the present invention, where the function sought to be identified in genomic sequence is protein coding, experimental verification is performed by measuring expression of the putative ORFs, typically through nucleic acid hybridization experiments, and in particularly preferred embodiments, through hybridization to genome-derived single exon microarrays prepared as above- described.

Expression is conveniently measured and expressed for each probe in the microarray as a ratio of the expression measured concurrently in a plurality of mRNA sources, according to techniques well known in the microarray art, Reviewed in Schena et al., and as further described in Example 2, below. The mRNA source for the reference against which specific expression is measured can be drawn from a homogeneous mRNA source, such as a single cultured cell-type, or alternatively can be heterogeneous, as from a pool of mRNA derived from multiple tissues and/or cell types, as further described in Example 2, *infra*.

mRNA can be prepared by standard techniques, see Ausubel et al. and Maniatis et al., or purchased

commercially. The mRNA is then typically reverse-transcribed in the presence of labeled nucleotides: the index source (that in which expression is desired to be measured) is reverse transcribed in the presence of  
5 nucleotides labeled with a first label, typically a fluorophore (fluorochrome; fluor; fluorescent dye); the reference source is reverse transcribed in the presence of a second label, typically a fluorophore, typically fluorometrically-distinguishable from the first label. As  
10 further described in Example 2, *infra*, Cy3 and Cy5 dyes prove particularly useful in these methods. After partial purification of the index and reference targets, hybridization to the probe array is conducted according to standard techniques, typically under a coverslip.

15 After wash, microarrays are conveniently scanned using a commercial microarray scanning device, such as a Gen3 Scanner (Molecular Dynamics, Sunnyvale, CA). Data on expression is then passed, with or without interim storage, to process 500, where the results for each probe are  
20 related to the original sequence.

Often, hybridization of target material to the genome-derived single exon microarray will identify certain of the probes thereon as of particular interest. Thus, it is often desirable that the user be able readily to obtain  
25 sufficient quantities of an individual probe, either for subsequent arrayed deposition upon an additional support substrate, often as part of a microarray having a plurality of probes so identified, or alternatively or additionally as a solitary solid-phase or solution-phase probe, for  
30 further use.

Thus, in another aspect, the present invention provides compositions and kits for the ready production of nucleic acids identical in sequence to, or substantially identical in sequence to, probes on the genome-derived  
35 single exon microarrays of the present invention.

In this aspect, a small quantity of each probe is disposed, typically without attachment to substrate, in a spatially-addressable ordered set, typically one per well of a microtiter dish. Although a 96 well microtiter plate  
5 can be used, greater efficiency is obtained using higher density arrays, such as are provided by microtiter plates having 384, 864, 1536, 3456, 6144, or 9600 wells, and although microtiter plates having physical depressions (wells) are conveniently used, any device that permits  
10 addressable withdrawal of reagent from fluidly-noncommunicating areas can be used.

In this aspect of the invention, therefore, a fluidly noncommunicating addressable ordered set of individual probes, corresponding to those on a genome-  
15 derived single exon microarray, is provided, with each probe in sufficient quantity to permit amplification, such as by PCR. As earlier mentioned, the ORF-specific 5' primers used for genomic amplification can have a first common sequence added thereto, and the ORF-specific 3'  
20 primers used for genomic amplification can have a second, different, common sequence added thereto, thus permitting, in this preferred embodiment, the use of a single set of 5' and 3' primers to amplify any one of the probes from the amplifiable ordered set.

25 Each discrete amplifiable probe can also be packaged with amplification primers, solutes, buffers, etc., and can be provided in dry (e.g., lyophilized) form or wet, in the latter case typically with addition of agents that retard evaporation.

30 In another aspect of the present invention, a genome-derived single-exon microarray is packaged together with such an ordered set of amplifiable probes corresponding to the probes, or one or more subsets of probes, thereon. In alternative embodiments, the ordered  
35 set of amplifiable probes is packaged separately from the

genome-derived single exon microarray.

In some embodiments, the microarray and/or ordered probe set are further packaged with recordable media that provide probe identification and addressing information, and that can additionally contain annotation information, such as gene expression data. Such recordable media can be packaged with the microarray, with the ordered probe set, or with both.

If the microarray is constructed on a substrate that incorporates recordable media, such as is described in international patent application no. WO 98/12559, then separate packaging of the genome-derived single exon microarray and the bioinformatic information is not required.

The amount of amplifiable probe material should be sufficient to permit at least one amplification sufficient for subsequent hybridization assay.

Although the use of high density genome-derived microarrays on solid planar substrates is presently a preferred approach for the physical confirmation and characterization of the expression of sequences predicted to encode protein, other types of microarrays (as herein defined) can also be used.

Furthermore, as earlier mentioned, experimental verification of the function predicted from genomic sequence in process 200 can be bioinformatic, rather than, or additional to, physical verification.

For example, where the function desired to be identified is protein coding, the predicted ORFs can be compared bioinformatically to sequences known or suspected of being expressed.

Thus, the sequences output from process 300 (or process 200), can be used to query expression databases, such as EST databases, SNP ("single nucleotide polymorphism") databases, known cDNA and mRNA sequences,

SAGE ("serial analysis of gene expression") databases, and more generalized sequence databases that allow query for expressed sequences. Such query can be done by any sequence query algorithm, such as BLAST ("basic local  
5 alignment search tool"). The results of such query - including information on identical sequences and information on nonidentical sequences that have diffuse or focal regions of sequence homology to the query sequence - can then be passed directly to process 500, or used to  
10 inform analyses subsequently undertaken in process 200, process 300, or process 400.

Experimental data, whether obtained by physical or bioinformatic assay in process 400, is passed to process 500 where it is usefully related to the sequence data  
15 itself, a process colloquially termed "annotation". Such annotation can be done using any technique that usefully relates the functional information to the sequence, as, for example, by incorporating the functional data into the record itself, by linking records in a hierarchical or  
20 relational database, by linking to external databases, or by a combination thereof. Such database techniques are well within the skill in the art.

The annotated sequence data can be stored locally, uploaded to genomic sequence database 100, and/or  
25 displayed 800.

The methods and apparatus of the present invention rapidly produce functional information from genomic sequence. Coupled with the escalating pace at which sequence now accumulates, the rapid pace of sequence  
30 annotation produces a need for methods of displaying the information in meaningful ways.

FIG. 3 shows visual display 80 presenting a single genomic sequence annotated according to the present invention. Because of its nominal resemblance to artistic  
35 works of Piet Mondrian, visual display 80 is alternatively

described herein as a "Mondrian".

Each of the visual elements of display 80 is aligned with respect to the genomic sequence being annotated (hereinafter, the "annotated sequence"). Given  
5 the number of nucleotides typically represented in an annotated sequence, representation of individual nucleotides would rarely be readable in hard copy output of display 80. Typically, therefore, the annotated sequence is schematized as rectangle 89, extending from the left  
10 border of display 80 to its right border. By convention herein, the left border of rectangle 89 represents the first nucleotide of the sequence and the right border of rectangle 89 represents the last nucleotide of the sequence.

15 As further discussed below, however, the Mondrian visual display of annotated sequence can serve as a convenient graphical user interface for computerized representation, analysis, and query of information stored electronically. For such use, the individual nucleotides  
20 can conveniently be linked to the X axis coordinate of rectangle 89. This permits the annotated sequence at any point within rectangle 89 readily to be viewed, either automatically - for example, by time-delayed appearance of a small overlaid window upon movement of a cursor or other  
25 pointer over rectangle 89 - or through user intervention, as by clicking a mouse or other pointing device at a point in rectangle 89.

Visual display 80 is generated after user specification of the genomic sequence to be displayed.  
30 Such specification can consist of or include an accession number for a single clone (e.g., a single BAC accessioned into GenBank), wherein the starting and stopping nucleotides are thus absolutely identified, or alternatively can consist of or include an anchor or  
35 fulcrum point about which a chosen range of sequence is

anchored, thus providing relative endpoints for the sequence to be displayed. For example, the user can anchor such a range about a given chromosomal map location, gene name, or even a sequence returned by query for similarity or identity to an input query sequence. When visual display 80 is used as a graphical user interface to computerized data, additional control over the first and last displayed nucleotide will typically be dynamically selectable, as by use of standard zooming and/or selection tools.

Field 81 of visual display 80 is used to present the output from process 200, that is, to present the bioinformatic prediction of those sequences having the desired function within the genomic sequence. Functional sequences are typically indicated by at least one rectangle 83 (83a, 83b, 83c), the left and right borders of which respectively indicate, by their X-axis coordinates, the starting and ending nucleotides of the region predicted to have function.

Where a single bioinformatic method or approach identifies a plurality of regions having the desired function, a plurality of rectangles 83 is disposed horizontally in field 81. Where multiple methods and/or approaches are used to identify function, each such method and/or approach can be represented by its own series of horizontally disposed rectangles 83, each such horizontally disposed series of rectangles offset vertically from those representing the results of the other methods and approaches.

Thus, rectangles 83a in FIG. 3 represent the functional predictions of a first method of a first approach for predicting function, rectangles 83b represent the functional predictions of a second method and/or second approach for predicting that function, and rectangles 83c represent the predictions of a third method and/or



approach.

Where the function desired to be identified is protein coding, field 81 is used to present the bioinformatic prediction of sequences encoding protein.

- 5 For example, rectangles 83a can represent the results from GRAIL or GRAIL II, rectangles 83b can represent the results from GENEFINDER, and rectangles 83c can represent the results from DICTION.

- 10 Optionally, and preferably, rectangles 83 collectively representing predictions of a single method and/or approach are identically colored and/or textured, and are distinguishable from the color and/or texture used for a different method and/or approach.

- 15 Alternatively, or in addition, the color, hue, density, or texture of rectangles 83 can be used further to report a measure of the bioinformatic reliability of the prediction. For example, many gene prediction programs will report a measure of the reliability of prediction. Thus, increasing degrees of such reliability can be  
20 indicated, e.g., by increasing density of shading. Where display 80 is used as a graphical user interface, such measures of reliability, and indeed all other results output by the program, can additionally or alternatively be made accessible through linkage from individual rectangles  
25 83, as by time-delayed window ("tool tip" window), or by pointer (e.g., mouse)-activated link.

- As earlier described, increased predictive reliability can be achieved by requiring consensus among methods and/or approaches to determining function. Thus,  
30 field 81 can include a horizontal series of rectangles 83 that indicate one or more degrees of consensus in predictions of function.

- Although FIG. 3 shows three series of horizontally disposed rectangles in field 81, display 80  
35 can include as few as one such series of rectangles and as

many as can discriminably be displayed, depending upon the number of methods and/or approaches used to predict a given function.

Furthermore, field 81 can be used to show  
5 predictions of a plurality of different functions.  
However, the increased visual complexity occasioned by such display makes more useful the ability of the user to select a single function for display. When display 80 is used as a graphical user interface for computer query and analysis,  
10 such function can usefully be indicated and user-selectable, as by a series of graphical buttons or tabs (not shown in FIG. 3).

Rectangle 89 is shown in FIG. 3 as including interposed rectangle 84. Rectangle 84 represents the  
15 portion of annotated sequence for which predicted functional information has been assayed physically, with the starting and ending nucleotides of the assayed material indicated by the X axis coordinates of the left and right borders of rectangle 84. Rectangle 85, with optional  
20 inclusive circles 86 (86a, 86b, and 86c) displays the results of such physical assay.

Although a single rectangle 84 is shown in FIG. 3, physical assay is not limited to just one region of annotated genomic sequence. It is expected that an  
25 increasing percentage of regions predicted to have function by process 200 will be assayed physically, and that display 80 will accordingly, for any given genomic sequence, have an increasing number of rectangles 84 and 85, representing an increased density of sequence annotation.

30 Where the function desired to be identified is protein coding, rectangle 84 identifies the sequence of the probe used to measure expression. In embodiments of the present invention where expression is measured using genome-derived single exon microarrays, rectangle 84  
35 identifies the sequence included within the probe

immobilized on the support surface of the microarray. As noted *supra*, such probe will often include a small amount of additional, synthetic, material incorporated during amplification and designed to permit reamplification of the probe, which sequence is typically not shown in display 80.

Rectangle 87 is used to present the results of bioinformatic assay of the genomic sequence. For example, where the function desired to be identified is protein coding, process 400 can include bioinformatic query of expression databases with the sequences predicted in process 200 to encode exons. And as earlier discussed, because bioinformatic assay presents fewer constraints than does physical assay, often the entire output of process 200 can be used for such assay, without further subsetting thereof by process 300. Therefore, rectangle 87 typically need not have separate indicators therein of regions submitted for bioinformatic assay; that is, rectangle 87 typically need not have regions therein analogous to rectangles 84 within rectangle 89.

Rectangle 87 as shown in FIG. 3 includes smaller rectangles 880 and 88. Rectangles 880 indicate regions that returned a positive result in the bioinformatic assay, with rectangles 88 representing regions that did not return such positive results. Where the function desired to be predicted and displayed is protein coding, rectangles 880 indicate regions of the predicted exons that identify sequence with significant similarity in expression databases, such as EST, SNP, SAGE databases, with rectangles 88 indicating genes novel over those identified in existing expression data bases.

Rectangles 880 can further indicate, through color, shading, texture, or the like, additional information obtained from bioinformatic assay.

For example, where the function assayed and displayed is protein coding, the degree of shading of

rectangles 880 can be used to represent the degree of sequence similarity found upon query of expression databases. The number of levels of discrimination can be as few as two (identity, and similarity, where similarity has a user-selectable lower threshold). Alternatively, as many different levels of discrimination can be indicated as can visually be discriminated.

Where display 80 is used as a graphical user interface, rectangles 880 can additionally provide links directly to the sequences identified by the query of expression databases, and/or statistical summaries thereof. As with each of the precedingly-discussed uses of display 80 as a graphical user interface, it should be understood that the information accessed via display 80 need not be resident on the computer presenting such display, which often will be serving as a client, with the linked information resident on one or more remotely located servers.

Rectangle 85 displays the results of physical assay of the sequence delimited by its left and right borders.

Rectangle 85 can consist of a single rectangle, thus indicating a single assay, or alternatively, and increasingly typically, will consist of a series of rectangles (85a, 85b, 85c) indicating separate physical assays of the same sequence.

Where the function assayed is gene expression, and where gene expression is assayed as herein described using simultaneous two-color fluorescent detection of hybridization to genome-derived single exon microarrays, individual rectangles 85 can be colored to indicate the degree of expression relative to control. Conveniently, shades of green can be used to depict expression in the sample over control values, and shades of red used to depict expression less than control, corresponding to the

spectra of the Cy3 and Cy5 dyes conventionally used for respective labeling thereof. Additional functional information can be provided in the form of circles 86 (86a, 86b, 86c), where the diameter of the circle can be used to indicate expression intensity. As discussed *infra*, such relative expression (expression ratios) and absolute expression (signal intensity) can be expressed using normalized values.

Where display 80 is used as a graphical user interface, rectangle 85 can be used as a link to further information about the assay. For example, where the assay is one for gene expression, each rectangle 85 can be used to link to information about the source of the hybridized mRNA, the identity of the control, raw or processed data from the microarray scan, or the like.

FIG. 4 is rendition of display 80 representing gene prediction and gene expression for a hypothetical BAC, showing conventions used in the Examples presented *infra*. BAC sequence ("Chip seq.") 89 is presented, with the physically assayed region thereof (corresponding to rectangle 84 in FIG. 3) shown in white. Algorithmic gene predictions are shown in field 81, with predictions by GRAIL shown, predictions by GENEFINDER, and predictions by DICTION shown. Within rectangle 87, regions of sequence that, when used to query expression databases, return identical or similar sequences ("EST hit") are shown as white rectangles (corresponding to rectangles 880 in FIG. 3), gray indicates low homology, and black indicates unknowns (where black and gray would correspond to rectangles 88 in FIG. 3).

Although FIGS. 3 and 4 show a single stretch of sequence, uninterrupted from left to right, longer sequences are usefully represented by vertical stacking of such individual Mondrians, as shown in FIGS. 9 and 10.

Single Exon Probes Useful For Measuring Gene Expression

The methods and apparatus of the present invention rapidly produce functional information from genomic sequence. Where the function to be identified is protein coding, the methods and apparatus of the present invention rapidly identify and confirm the expression of portions of genomic sequence that function to encode protein. As a direct result, the methods and apparatus of the present invention rapidly yield large numbers of single-exon nucleic acid probes, the majority from previously unknown genes, each of which is useful for measuring and/or surveying expression of a specific gene in one or more tissues or cell types.

It is, therefore, another aspect of the present invention to provide genome-derived single exon nucleic acid probes useful for gene expression analysis, and particularly for gene expression analysis by microarray.

Using the methods and genome-derived single-exon microarrays of the present invention, we have for example readily identified a large number of unique ORFs from human genomic sequence. Using single exon probes that encompass these ORFs, we have demonstrated, through microarray hybridization analysis, the expression of 13,232 of these ORFs in placenta.

As would immediately be appreciated by one of skill in the art, each single exon probe having demonstrable expression in placenta is currently available for use in measuring the level of its ORF's expression in placenta.

Given the substantial impact on human morbidity and mortality of diseases directly caused by genetic defect, and given the profound influence of genetic factors on the predisposition, onset, and/or aggressiveness of most, if not all human diseases, there has long been

interest in efficient and safe means for early detection of gene defects and polymorphisms that cause, are associated with, or are implicated in development of disease.

Classically, such antenatal diagnosis was  
5 effected during second trimester by metaphase karyotyping of fetal cells that had shed spontaneously into amniotic fluid.

More recently, techniques have been developed that permit direct sampling of placenta earlier in  
10 pregnancy.

One technique in current clinical practice is chorionic villus sampling, which can be used to detect gene defects or polymorphisms in cells from the developing fetus, usually between 10 and 12 weeks of pregnancy. In  
15 chorionic villus sampling, a small sample of chorionic villi, which are tiny projections that make up part of the placenta, a fetal-derived tissue, is removed through the mother's cervix or the abdominal wall. Placental chromosomal DNA is then isolated from the chorionic villus  
20 cells and analyzed to detect a small number of known genetic defects. Such defects range from gross karyotypic changes, such as triploidy, to discrete point mutations known to cause diseases having significant morbidity or mortality.

25 Although only a few diseases are at present diagnosed by antenatal analysis of human placenta, a far higher number of human diseases and disorders have been catalogued in which dysfunction or misregulation of one or more genes contributes to the disease phenotype. At one  
30 end of the spectrum of genetic diseases are those, such as sickle cell trait, in which a single point mutation is responsible for the disease phenotype. At the other end of the spectrum lie disorders such as Down syndrome wherein the presence of a supernumerary chromosome manifests itself  
35 in variety of phenotypic defects that vary in severity

among affected individuals. For most, possibly all genetic diseases, the precise phenotypic manifestation and its severity is a function of a complex interaction between the definable genetic lesion and the action of many other genes  
5 and environmental factors.

Although the incidence of many genetic diseases is low, a sufficient number of such genetic diseases affect a sufficiently large population that they impact the national health economy. For example, cystic fibrosis,  
10 caused by mutations in a gene encoding a chloride ion channel and resulting in lung and other disorders, occurs at a rate of about 1 in 3000 births among Caucasians and costs over \$1 billion annually for direct medical treatment in the U.S. alone. Furthermore, it is increasingly thought  
15 that for many diseases where no clear-cut genetic lesion appears responsible, possession by individuals of particular gene alleles naturally occurring within certain populations places such individuals at increased risk for developing those diseases. Examples include heart disease,  
20 neurogenerative disorders, diabetes, cancer and autoimmune disorders. For yet other diseases, especially cancer, the etiology is truly polygenic in that defects in multiple genes must coincide in the same individual or even the same cell for the disease to develop and/or progress.

25 A large number of human genetic diseases and disorders are known, as are the gene or genes implicated in the etiology of the disease. Although in some cases single gene defects are known to be responsible for the etiology of a genetic disease, it is believed that for most or all  
30 such diseases, penetrance of the disease is affected by interaction with other genes. For other diseases or disorders, is believed that their mechanism is explained by the interaction of multiple genes, or by mutations or other defects in multiple genes. Such diseases and disorders may  
35 be detected in placenta.



The human genome-derived single exon nucleic acid probes and microarrays of the present invention are useful for antenatal diagnosis of human genetic disorders. With each of the single exon probes described herein shown to be  
5 expressed at detectable levels in human placenta, and with about 2/3 of the probes identifying novel genes, the single exon microarrays of the present invention provide exceptionally high informational content for such studies.

For example, antenatal diagnosis can be based  
10 upon the quantitative relatedness of a placental gene expression profile to one or more reference expression profiles known to be characteristic of a given disease, or to specific grades or stages thereof.

In one embodiment, the gene expression profile is  
15 generated by hybridizing nucleic acids obtained directly or indirectly from placenta, typically through chorionic villus sampling, to the genome-derived single exon microarray of the present invention. Reference profiles are obtained similarly by hybridizing nucleic acids from  
20 individuals with known disease.

Methods for quantitatively relating gene expression profiles, without regard to the function of the protein encoded by the gene, are disclosed in WO 99/58720, incorporated herein by reference in its entirety.

25 In another approach, the genome-derived single exon probes and microarrays of the present invention can be used to interrogate genomic DNA, rather than pools of expressed message; this latter approach permits presence and/or predisposition to disease to be assessed through the  
30 massively parallel determination of altered copy number, deletion, or mutation of exons known to be expressed in human placenta. The algorithms set forth in WO 99/58720 can be applied to such genomic profiles without regard to the function of the protein encoded by the interrogated  
35 gene.

The utility is specific to the probe; at sufficiently high hybridization stringency, which stringencies are well known in the art — see Ausubel et al. and Maniatis et al. — each probe reports the level of expression of message specifically containing that ORF.

It should be appreciated, however, that the probes of the present invention, for which expression in the placenta has been demonstrated are useful for both measurement in the placenta and for survey of expression in other tissues.

Significant among such advantages is the presence of probes for novel genes.

As mentioned above and further detailed in Examples 1 and 2, the methods described enable ORFs which are not present in existing expression databases to be identified. And the fewer the number of tissues in which the ORF can be shown to be expressed, the more likely the ORF will prove to be part of a novel gene: as further discussed in Example 2, ORFs whose expression was measurable in only a single of the tested tissues were represented in existing expression databases at a rate of only 11%, whereas 36% of ORFs whose expression was measurable in 9 tissues were present in existing expression databases, and fully 45% of those ORFs expressed in all ten tested tissues were present in existing expressed sequence databases.

Either as tools for measuring gene expression or tools for surveying gene expression, the genome-derived single exon probes of the present invention have significant advantages over the cDNA or EST-based probes that are currently available for achieving these utilities.

The genome-derived single exon probes of the present invention are useful in constructing genome-derived single exon microarrays; the genome-derived single exon microarrays, in turn, are useful devices for measuring and

for surveying gene expression in the human.

Gene expression analysis using microarrays - conventionally using microarrays having probes derived from expressed message - is well-established as useful in the biological research arts (see Lockhart et al. *Nature* 405, 827-836).

Microarrays have been used to determine gene expression profiles in cells in response to drug treatment (see, for example, Kaminski et al., "Global Analysis of Gene Expression in Pulmonary Fibrosis Reveals Distinct Programs Regulating Lung Inflammation and Fibrosis," *Proc. Natl. Acad. Sci. USA* 97(4):1778-83 (2000); Bartosiewicz et al., "Development of a Toxicological Gene Array and Quantitative Assessment of This Technology," *Arch. Biochem. Biophys.* 376(1):66-73 (2000)), viral infection (see for example, Geiss et al., "Large-scale Monitoring of Host Cell Gene Expression During HIV-1 Infection Using cDNA Microarrays," *Virology* 266(1):8-16 (2000)) and during cell processes such as differentiation, senescence and apoptosis (see, for example, Shelton et al., "Microarray Analysis of Replicative Senescence," *Curr. Biol.* 9(17):939-45 (1999); Voehringer et al., "Gene Microarray Identification of Redox and Mitochondrial Elements That Control Resistance or Sensitivity to Apoptosis," *Proc. Natl. Acad. Sci. USA* 97(6):2680-5 (2000)).

Microarrays have also been used to determine abnormal gene expression in diseased tissues (see, for example, Alon et al., "Broad Patterns of Gene Expression Revealed by Clustering Analysis of Tumor and Normal Colon Tissues Probed by Oligonucleotide Arrays," *Proc. Natl. Acad. Sci. USA* 96(12):6745-50 (1999); Perou et al., "Distinctive Gene Expression Patterns in Human Mammary Epithelial Cells and Breast Cancers," *Proc. Natl. Acad. Sci. USA* 96(16):9212-7 (1999); Wang et al., "Identification of Genes Differentially Over-expressed in Lung Squamous Cell

Carcinoma Using Combination of cDNA Subtraction and  
Microarray Analysis," *Oncogene* 19(12):1519-28 (2000);  
Whitney et al., "Analysis of Gene Expression in Multiple  
Sclerosis Lesions Using cDNA Microarrays," *Ann. Neurol.*  
5 46(3):425-8 (1999)), in drug discovery screens (see, for  
example, Scherf et al., "A Gene Expression Database for the  
Molecular Pharmacology of Cancer," *Nat. Genet.* 24(3):236-44  
(2000)) and in diagnosis to determine appropriate treatment  
strategies (see, for example, Sgroi et al., "In vivo Gene  
10 Expression Profile Analysis of Human Breast Cancer  
Progression," *Cancer Res.* 59(22):5656-61 (1999)).

In microarray-based gene expression screens of  
pharmacological drug candidates upon cells, each probe  
provides specific useful data. In particular, it should be  
15 appreciated that even those probes that show no change in  
expression are as informative as those that do change,  
serving, in essence, as negative controls.

For example, where gene expression analysis is  
used to assess toxicity of chemical agents on cells, the  
20 failure of the agent to change a gene's expression level is  
evidence that the drug likely does not affect the pathway  
of which the gene's expressed protein is a part.  
Analogously, where gene expression analysis is used to  
assess side effects of pharmacological agents - whether in  
25 lead compound discovery or in subsequent screening of lead  
compound derivatives - the inability of the agent to alter  
a gene's expression level is evidence that the drug does  
not affect the pathway of which the gene's expressed  
protein is a part.

30 WO 99/58720 provides methods for quantifying the  
relatedness of a first and second gene expression profile  
and for ordering the relatedness of a plurality of gene  
expression profiles. The methods so described permit  
useful information to be extracted from a greater  
35 percentage of the individual gene expression measurements

from a microarray than methods previously used in the art.

Other uses of microarrays are described in Gerhold et al., *Trends Biochem. Sci.* 24(5):168-173 (1999) and Zweiger, *Trends Biotechnol.* 17(11):429-436 (1999);

5 Schena et al.

The invention particularly provides genome-derived single-exon probes known to be expressed in placenta. The individual single exon probes can be provided in the form of substantially isolated and purified  
10 nucleic acid, typically, but not necessarily, in a quantity sufficient to perform a hybridization reaction.

Such nucleic acid can be in any form directly hybridizable to the message that contains the probe's ORF, such as double stranded DNA, single-stranded DNA  
15 complementary to the message, single-stranded RNA complementary to the message, or chimeric DNA/RNA molecules so hybridizable. The nucleic acid can alternatively or additionally include either nonnative nucleotides, alternative internucleotide linkages, or both, so long as  
20 complementary binding can be obtained. For example, probes can include phosphorothioates, methylphosphonates, morpholino analogs, and peptide nucleic acids (PNA), as are described, for example, in U.S. Patent Nos. 5,142,047; 5,235,033; 5,166,315; 5,217,866; 5,184,444; 5,861,250.

25 Usefully, however, such probes are provided in a form and quantity suitable for amplification, where the amplified product is thereafter to be used in the hybridization reactions that probe gene expression. Typically, such probes are provided in a form and quantity  
30 suitable for amplification by PCR or by other well known amplification technique. One such technique additional to PCR is rolling circle amplification, as is described, inter alia, in U.S. Patent Nos. 5,854,033 and 5,714,320 and international patent publications WO 97/19193 and  
35 WO 00/15779. As is well understood, where the probes are

to be provided in a form suitable for amplification, the range of nucleic acid analogues and/or internucleotide linkages will be constrained by the requirements and nature of the amplification enzyme.

5           Where the probe is to be provided in form suitable for amplification, the quantity need not be sufficient for direct hybridization for gene expression analysis, and need be sufficient only to function as an amplification template, typically at least about 1, 10 or  
10 100 pg or more.

Each discrete amplifiable probe can also be packaged with amplification primers, either in a single composition that comprises probe template and primers, or in a kit that comprises such primers separately packaged  
15 therefrom. As earlier mentioned, the ORF-specific 5' primers used for genomic amplification can have a first common sequence added thereto, and the ORF-specific 3' primers used for genomic amplification can have a second, different, common sequence added thereto, thus permitting,  
20 in this embodiment, the use of a single set of 5' and 3' primers to amplify any one of the probes. The probe composition and/or kit can also include buffers, enzyme, etc., required to effect amplification.

As mentioned earlier, when intended for use on a  
25 genome-derived single exon microarray of the present invention, the genome-derived single exon probes of the present invention will typically average at least about 100, 200, 300, 400 or 500 bp in length, including (and typically, but not necessarily centered about) the ORF.  
30 Furthermore, when intended for use on a genome-derived single exon microarray of the present invention, the genome-derived single exon probes of the present invention will typically not contain a detectable label.

When intended for use in solution phase  
35 hybridization, however — that is, for use in a

hybridization reaction in which the probe is not first bound to a support substrate (although the target may indeed be so bound) - length constraints that are imposed in microarray-based hybridization approaches will be relaxed, and such probes will typically be labeled.

In such case, the only functional constraint that dictates the minimum size of such probe is that each such probe must be capable of specifically identifying in a hybridization reaction the exon from which it is drawn. In theory, a probe of as little as 17 nucleotides is capable of uniquely identifying its cognate sequence in the human genome. For hybridization to expressed message - a subset of target sequence that is much reduced in complexity as compared to genomic sequence - even fewer nucleotides are required for specificity.

Therefore, the probes of the present invention can include as few as 20, 25 or 50 bp or ORF, or more. In particular embodiments, the ORF sequences are given in SEQ ID NOS. 13,233 - 26,232, respectively, for probe SEQ ID NOS. 1 - 13,232. The minimum amount of ORF required to be included in the probe of the present invention in order to provide specific signal in either solution phase or microarray-based hybridizations can readily be determined for each of ORF SEQ ID NOS. 13,233 - 26,232 individually by routine experimentation using standard high stringency conditions.

Such high stringency conditions are described, *inter alia*, in Ausubel et al. and Maniatis et al. For microarray-based hybridization, standard high stringency conditions can usefully be 50% formamide, 5X SSC, 0.2 µg/µl poly(dA), 0.2 µg/µl human *cot1* DNA, and 0.5 % SDS, in a humid oven at 42°C overnight, followed by successive washes of the microarray in 1X SSC, 0.2% SDS at 55°C for 5 minutes, and then 0.1X SSC, 0.2% SDS, at 55°C for 20 minutes. For solution phase hybridization, standard high

stringency conditions can usefully be aqueous hybridization at 65°C in 6X SSC. Lower stringency conditions, suitable for cross-hybridization to mRNA encoding structurally- and functionally-related proteins, can usefully be the same as the high stringency conditions but with reduction in temperature for hybridization and washing to room temperature (approximately 25°C).

When intended for use in solution phase hybridization, the maximum size of the single exon probes of the present invention is dictated by the proximity of other expressed exons in genomic DNA: although each single exon probe can include intergenic and/or intronic material contiguous to the ORF in the human genome, each probe of the present invention will include portions of only one expressed exon.

Thus, each single exon probe will include no more than about 25 kb of contiguous genomic sequence, more typically no more than about 20 kb of contiguous genomic sequence, more usually no more than about 15 kb, even more usually no more than about 10 kb. Usually, probes that are maximally about 5 kb will be used, more typically no more than about 3 kb.

It will be appreciated that the Sequence Listing appended hereto presents, by convention, only that strand of the probe and ORF sequence that can be directly translated reading from 5' to 3' end. As would be well understood by one of skill in the art, single stranded probes must be complementary in sequence to the ORF as present in an mRNA; it is well within the skill in the art to determine such complementary sequence. It will further be understood that double stranded probes can be used in both solution-phase hybridization and microarray-based hybridization if suitably denatured.

Thus, it is an aspect of the present invention to provide single-stranded nucleic acid probes that have



sequence complementary to those described herein above and below, and double-stranded probes one strand of which has sequence complementary to the probes described herein.

The probes can, but need not, contain intergenic and/or intronic material that flanks the ORF, on one or both sides, in the same linear relationship to the ORF that the intergenic and/or intronic material bears to the ORF in genomic DNA. The probes do not, however, contain nucleic acid derived from more than one expressed ORF.

And when intended for use in solution hybridization, the probes of the present invention can usefully have detectable labels. Nucleic acid labels are well known in the art, and include, inter alia, radioactive labels, such as  $^3\text{H}$ ,  $^{32}\text{P}$ ,  $^{33}\text{P}$ ,  $^{35}\text{S}$ ,  $^{125}\text{I}$ ,  $^{131}\text{I}$ ; fluorescent labels, such as Cy3, Cy5, Cy5.5, Cy7, SYBR<sup>®</sup>

Green and other labels described in Haugland, *Handbook of Fluorescent Probes and Research Chemicals*, 7th ed., Molecular Probes Inc., Eugene, OR (2000), or fluorescence resonance energy transfer tandem conjugates thereof; labels suitable for chemiluminescent and/or enhanced chemiluminescent detection; labels suitable for ESR and NMR detection; and labels that include one member of a specific binding pair, such as biotin, digoxigenin, or the like.

The probes, either in quantity sufficient for hybridization or sufficient for amplification, can be provided in individual vials or containers.

Alternatively, such probes can usefully be packaged as a plurality of such individual genome-derived single exon probes.

When provided as a collection of plural individual probes, the probes are typically made available in amplifiable form in a spatially-addressable ordered set, typically one per well of a microtiter dish. Although a 96 well microtiter plate can be used, greater efficiency is

obtained using higher density arrays.

If, as earlier mentioned, the ORF-specific 5' primers used for genomic amplification had a first common sequence added thereto, and the ORF-specific 3' primers used for genomic amplification had a second, different, common sequence added thereto, a single set of 5' and 3' primers can be used to amplify all of the probes from the amplifiable ordered set.

Such collections of genome-derived single exon probes can usefully include a plurality of probes chosen for the common attribute of expression in the human placenta.

In such defined subsets, typically at least 50, 60, 75, 80, 85, 90 or 95% or more of the probes will be chosen by their expression in the defined tissue or cell type.

The single exon probes of the present invention, as well as fragments of the single exon probes comprising selectively hybridizable portions of the probe ORF, can be used to obtain the full length cDNA that includes the ORF by (i) screening of cDNA libraries; (ii) rapid amplification of cDNA ends ("RACE"); or (iii) other conventional means, as are described, *inter alia*, in Ausubel et al. and Maniatis et al.

It is another aspect of the present invention to provide genome-derived single exon nucleic acid microarrays useful for gene expression analysis, where the term "microarray" has the meaning given in the definitional section of this description, *supra*.

The invention particularly provides genome-derived single-exon nucleic acid microarrays comprising a plurality of probes known to be expressed in human placenta. In preferred embodiments, the present invention provides human genome-derived single exon microarrays comprising a plurality of probes drawn from the group

consisting of SEQ ID NOS.: 1 - 13,232.

When used for gene expression analysis, the genome-derived single exon microarrays provide greater physical informational density than do the genome-derived single exon microarrays that have lower percentages of probes known to be expressed commonly in the tested tissue. At a fixed probe density, for example, a given microarray surface area of the defined subset genome-derived single exon microarray can yield a greater number of expression measurements. Alternatively, at a given probe density, the same number of expression measurements can be obtained from a smaller substrate surface area. Alternatively, at a fixed probe density and fixed surface area, probes can be provided redundantly, providing greater reliability in signal measurement for any given probe. Furthermore, with a higher percentage of probes known to be expressed in the assayed tissue, the dynamic range of the detection means can be adjusted to reveal finer levels discrimination among the levels of expression.

Although particularly described with respect to their utility as probes of gene expression, particularly as probes to be included on a genome-derived single exon microarray, each of the nucleic acids having SEQ ID NOS.: 1 - 13,232 contains an open-reading frame, set forth respectively in SEQ ID NOS.: 13,233 - 26,232, that encodes a protein domain. Thus, each of SEQ ID NOS. 1 - 13,232 can be used, or that portion thereof in SEQ ID NOS. 13,233 - 26,232 used, to express a protein domain by standard in vitro recombinant techniques. See Ausubel et al. and Maniatis et al.

Additionally, kits are available commercially that readily permit such nucleic acids to be expressed as protein in bacterial cells, insect cells, or mammalian cells, as desired (e.g., HAT<sup>™</sup> Protein Expression & Purification System, ClonTech Laboratories, Palo Alto, CA;

Adeno-X™ Expression System, ClonTech Laboratories, Palo Alto, CA; Protein Fusion & Purification (pMAL™) System, New England Biolabs, Beverly, MA)

Furthermore, shorter peptides can be chemically synthesized using commercial peptide synthesizing equipment and well known techniques. Procedures are described, *inter alia*, in Chan et al. (eds.), Fmoc Solid Phase Peptide Synthesis: A Practical Approach (Practical Approach Series, (Paper)), Oxford Univ. Press (March 2000) (ISBN: 0199637245); Jones, Amino Acid and Peptide Synthesis (Oxford Chemistry Primers, No 7) , Oxford Univ. Press (August 1992) (ISBN: 0198556683); and Bodanszky, Principles of Peptide Synthesis (Springer Laboratory), Springer Verlag (December 1993) (ISBN: 0387564314).

It is, therefore, another aspect of the invention to provide peptides comprising an amino acid sequence translated from SEQ ID NOS.: 13,233 - 26,232. Such amino acid sequences are set out in SEQ ID NOS: 26,233 - 38,837. Any such recombinantly-expressed or synthesized peptide of at least 8, and preferably at least about 15, amino acids, can be conjugated to a carrier protein and used to generate antibody that recognizes the peptide. Thus, it is a further aspect of the invention to provide peptides that have at least 8, preferably at least 15, consecutive amino acids.

The following examples are offered by way of illustration and not by way of limitation.

#### 30 EXAMPLE 1

Preparation of Single Exon Microarrays from ORFs Predicted in Human Genomic Sequence

#### Bioinformatics Results

35 All human BAC sequences in fewer than 10 pieces

that had been accessioned in a five month period immediately preceding this study were downloaded from GenBank. This corresponds to ~2200 clones, totaling ~350 MB of sequence, or approximately 10% of the human genome.

5 After masking repetitive elements using the program CROSS\_MATCH, the sequence was analyzed for open reading frames using three separate gene finding programs. The three programs predict genes using independent algorithmic methods developed on independent training sets:  
10 GRAIL uses a neural network, GENEFINDER uses a hidden Markoff model, and DICTION, a program proprietary to Genetics Institute, operates according to a different heuristic. The results of all three programs were used to create a prediction matrix across the segment of genomic  
15 DNA.

The three gene finding programs yielded a range of results. GRAIL identified the greatest percentage of genomic sequence as putative coding region, 2% of the data analyzed. GENEFINDER was second, calling 1%, and DICTION  
20 yielded the least putative coding region, with 0.8% of genomic sequence called as coding region.

The consensus data were as follows. GRAIL and GENEFINDER agreed on 0.7% of genomic sequence, GRAIL and DICTION agreed on 0.5% of genomic sequence, and the three  
25 programs together agreed on 0.25% of the data analyzed. That is, 0.25% of the genomic sequence was identified by all three of the programs as containing putative coding region.

ORFs predicted by any two of the three programs  
30 ("consensus ORFs") were assorted into "gene bins" using two criteria: (1) any 7 consecutive exons within a 25 kb window were placed together in a bin as likely contributing to a single gene, and (2) all ORFs within a 25 kb window were placed together in a bin as likely contributing to a single  
35 gene if fewer than 7 exons were found within the 25 kb

window.

### PCR

The largest ORF from each gene bin that did not span repetitive sequence was then chosen for amplification, as were all consensus ORFs longer than 500 bp. This method approximated one exon per gene; however, a number of genes were found to be represented by multiple elements.

Previously, we had determined that DNA fragments fewer than 250 bp in length do not bind well to the amino-modified glass surface of the slides used as support substrate for construction of microarrays; therefore, amplicons were designed in the present experiments to approximate 500 bp in length.

Accordingly, after selecting the largest ORF per gene bin, a 500 bp fragment of sequence centered on the ORF was passed to the primer picking software, PRIMER3 (available online for use at <http://www-genome.wi.mit.edu/cgi-bin/primer/>). A first additional sequence was commonly added to each ORF-unique 5' primer, and a second, different, additional sequence was commonly added to each ORF-unique 3' primer, to permit subsequent reamplification of the amplicon using a single set of "universal" 5' and 3' primers, thus immortalizing the amplicon. The addition of universal priming sequences also facilitates sequence verification, and can be used to add a cloning site should some ORFs be found to warrant further study.

The ORFs were then PCR amplified from genomic DNA, verified on agarose gels, and sequenced using the universal primers to validate the identity of the amplicon to be spotted in the microarray.

Primers were supplied by Operon Technologies (Alameda, CA). PCR amplification was performed by standard techniques using human genomic DNA (Clontech, Palo Alto,

CA) as template. Each PCR product was verified by SYBR green (Molecular Probes, Inc., Eugene, OR) staining of agarose gels, with subsequent imaging by Fluorimager (Molecular Dynamics, Inc., Sunnyvale, CA). PCR  
5 amplification was classified as successful if a single band appeared.

The success rate for amplifying ORFs of interest directly from genomic DNA using PCR was approximately 75%. FIG. 5 graphs the distribution of predicted ORF (exon)  
10 length and distribution of amplified PCR products, with ORF length shown in red and PCR product length shown in blue (which may appear black in the figure). Although the range of ORF sizes is readily seen to extend to beyond 900 bp, the mean predicted exon size was only 229 bp, with a median  
15 size of 150 bp (n=9498). With an average amplicon size of  $475 \pm 25$  bp, approximately 50% of the average PCR amplification product contained predicted coding region, with the remaining 50% of the amplicon containing either intron, intergenic sequence, or both.

20 Using a strategy predicated on amplifying about 500 bp, it was found that long exons had a higher PCR failure rate. To address this, the bioinformatics process was adjusted to amplify 1000, 1500 or 2000 bp fragments from exons larger than 500 bp. This improved the rate of  
25 successful amplification of exons exceeding 500 bp, constituting about 9.2% of the exons predicted by the gene finding algorithms.

Approximately 75% of the probes disposed on the array (90% of those that successfully PCR amplified) were  
30 sequence-verified by sequencing in both the forward and reverse direction using MegaBACE sequencer (Molecular Dynamics, Inc., Sunnyvale, CA), universal primers, and standard protocols.

Some genomic clones (BACs) yielded very poor PCR  
35 and sequencing results. The reasons for this are unclear,

but may be related to the quality of early draft sequence or the inclusion of vector and host contamination in some submitted sequence data.

Although the intronic and intergenic material  
5 flanking coding regions could theoretically interfere with hybridization during microarray experiments, subsequent empirical results demonstrated that differential expression ratios were not significantly affected by the presence of noncoding sequence. The variation in exon size was  
10 similarly found not to affect differential expression ratios significantly; however, variation in exon size was observed to affect the absolute signal intensity (data not shown).

The 350 MB of genomic DNA was, by the above-  
15 described process, reduced to 9750 discrete probes, which were spotted in duplicate onto glass slides using commercially available instrumentation (MicroArray GenII Spotter and/or MicroArray GenIII Spotter, Molecular Dynamics, Inc., Sunnyvale, CA). Each slide additionally  
20 included either 16 or 32 *E. coli* genes, the average hybridization signal of which was used as a measure of background biological noise.

Each of the probe sequences was BLASTed against the human EST data set, the NR data set, and SwissProt  
25 GenBank (May 7, 1999 release 2.0.9).

One third of the probe sequences (as amplified) produced an exact match (BLAST Expect ("E") values less than  $1 e^{-100}$ ) to either an EST (20% of sequences) or a known mRNA (13% of sequences). A further 22% of the probe  
30 sequences showed some homology to a known EST or mRNA (BLAST E values from  $1 e^{-5}$  to  $1 e^{-99}$ ). The remaining 45% of the probe sequences showed no significant sequence homology to any expressed, or potentially expressed, sequences present in public databases.

35 All of the probe sequences (as amplified) were



then analyzed for protein similarities with the SwissProt database using BLASTX, Gish et al., Nature Genet. 3:266 (1993). The predicted functional breakdowns of the 2/3 of probes identical or homologous to known sequences are presented in Table 1.

Table 1

| Function of Predicted ORFs As Deduced From Comparative Sequence Analysis |         |         |   |
|--|---------|---------|---|
| Total  | V6 chip | V7 chip | Function Predicted from Comparative Sequence Analysis |
| 211  | 96      | 115     | Receptor  |
| 120  | 43      | 77      | Zinc Finger   |
| 30   | 11      | 19      | Homeobox  |
| 25   | 9       | 16      | Transcription Factor                                  |
| 17   | 11      | 7       | Transcription   |
| 118  | 57      | 61      | Structural  |
| 95   | 39      | 56      | Kinase  |
| 36   | 18      | 18      | Phosphatase   |
| 83   | 31      | 52      | Ribosomal   |
| 45   | 19      | 26      | Transport   |
| 21   | 17      | 14      | Growth Factor   |
| 17   | 12      | 5       | Cytochrome  |
| 50   | 33      | 17      | Channel   |

As can be seen, the two most common types of genes were transcription factors and receptors, making up 2.2% and 1.8% of the arrayed elements, respectively.

#### EXAMPLE 2

Gene Expression Measurements From Genome-Derived Single

## Exon Microarrays

The two genome-derived single exon microarrays  
5 prepared according to Example 1 were hybridized in a series  
of simultaneous two-color fluorescence experiments to (1)  
Cy3-labeled cDNA synthesized from message drawn  
individually from each of brain, heart, liver, fetal liver,  
placenta, lung, bone marrow, HeLa, BT 474, or HBL 100  
10 cells, and (2) Cy5-labeled cDNA prepared from message  
pooled from all ten tissues and cell types, as a control in  
each of the measurements. Hybridization and scanning were  
carried out using standard protocols and Molecular Dynamics  
equipment.

15 Briefly, mRNA samples were bought from commercial  
sources (Clontech, Palo Alto, CA and Amersham Pharmacia  
Biotech (APB)). Cy3-dCTP and Cy5-dCTP (both from APB) were  
incorporated during separate reverse transcriptions of 1 µg  
of polyA<sup>+</sup> mRNA performed using 1 µg oligo(dT)12-18 primer  
20 and 2 µg random 9mer primers as follows. After heating to  
70°C, the RNA:primer mixture was snap cooled on ice. After  
snap cooling on ice, added to the RNA to the stated final  
concentration was: 1X Superscript II buffer, 0.01 M DTT,  
100µM dATP, 100 µM dGTP, 100 µM dTTP, 50 µM dCTP, 50 µM  
25 Cy3-dCTP or Cy5-dCTP 50 µM, and 200 U Superscript II  
enzyme. The reaction was incubated for 2 hours at 42°C.  
After 2 hours, the first strand cDNA was isolated by adding  
1 U Ribonuclease H, and incubating for 30 minutes at 37°C.  
The reaction was then purified using a Qiagen PCR cleanup  
30 column, increasing the number of ethanol washes to 5.  
Probe was eluted using 10 mM Tris pH 8.5.

Using a spectrophotometer, probes were measured  
for dye incorporation. Volumes of both Cy3 and Cy5 cDNA  
corresponding to 50 pmoles of each dye were then dried in a  
35 Speedvac, resuspended in 30 µl hybridization solution

containing 50% formamide, 5X SSC, 0.2 µg/µl poly(dA), 0.2 µg/µl human c<sub>o</sub>t1 DNA, and 0.5 % SDS.

Hybridizations were carried out under a coverslip, with the array placed in a humid oven at 42°C overnight. Before scanning, slides were washed in 1X SSC, 0.2% SDS at 55°C for 5 minutes, followed by 0.1X SSC, 0.2% SDS, at 55°C for 20 minutes. Slides were briefly dipped in water and dried thoroughly under a gentle stream of nitrogen.

Slides were scanned using a Molecular Dynamics Gen3 scanner, as described. Schena (ed.), Microarray Biochip: Tools and Technology, Eaton Publishing Company/BioTechniques Books Division (2000) (ISBN: 1881299376).

Although the use of pooled cDNA as a reference permitted the survey of a large number of tissues, it attenuates the measurement of relative gene expression, since every highly expressed gene in the tissue/cell type-specific fluorescence channel will be present to a level of at least 10% in the control channel. Because of this fact, both signal and expression ratios (the latter hereinafter, "expression" or "relative expression") for each probe were normalized using the average ratio or average signal, respectively, as measured across the whole slide.

Data were accepted for further analysis only when signal was at least three times greater than biological noise, the latter defined by the average signal produced by the *E. coli* control genes.

The relative expression signal for these probes was then plotted as function of tissue or cell type, and is presented in FIG. 6.

FIG. 6 shows the distribution of expression across a panel of ten tissues. The graph shows the number of sequence-verified products that were either not expressed ("0"), expressed in one or more but not all

tested tissues ("1" - "9"), and expressed in all tissues tested ("10").

Of 9999 arrayed elements on the two microarrays (including positive and negative controls and "failed" products), 2353 (51%) were expressed in at least one tissue or cell type. Of the gene elements showing significant signal - where expression was scored as "significant" if the normalized Cy3 signal was greater than 1, representing signal 5-fold over biological noise (0.2) - 39% (991) were expressed in all 10 tissues. The next most common class (15%) consisted of gene elements expressed in only a single tissue.

The genes expressed in a single tissue were further analyzed, and the results of the analyses are compiled in FIG. 7.

FIG. 7A is a matrix presenting the expression of all verified sequences that showed expression greater than 3 in at least one tissue. Each clone is represented by a column in the matrix. Each of the 10 tissues assayed is represented by a separate row in the matrix, and relative expression of a clone in that tissue is indicated at the respective node by intensity of green shading, with the intensity legend shown in panel B. The top row of the matrix ("EST Hit") contains "bioinformatic" rather than "physical" expression data - that is, presents the results returned by query of EST, NR and SwissProt databases using the probe sequence. The legend for "bioinformatic expression" (i.e., degree of homology returned) is presented in panel C. Briefly, white is known, black is novel, with gray depicting nonidentical with significant homology (white: E values < 1e-100; gray: E values from 1e-05 to 1e-99; black: E values > 1e-05).

As FIG. 7 readily shows, heart and brain were demonstrated to have the greatest numbers of genes that were shown to be uniquely expressed in the respective

tissue. In brain, 200 uniquely expressed genes were identified; in heart, 150. The remaining tissues gave the following figures for uniquely expressed genes: liver, 100; lung, 70; fetal liver, 150; bone marrow, 75; placenta, 100; 5 HeLa, 50; HBL, 100; and BT474, 50.

It was further observed that there were many more "novel" genes among those that were up-regulated in only one tissue, as compared with those that were down-regulated in only one tissue. In fact, it was found that ORFs whose 10 expression was measurable in only a single of the tested tissues were represented in sequencing databases at a rate of only 11%, whereas 36% of the ORFs whose expression was measurable in 9 of the tissues were present in public databases. As for those ORFs expressed in all ten tissues, 15 fully 45% were present in existing expressed sequence databases. These results are not unexpected, since genes expressed in a greater number of tissues have a higher likelihood of being, and thus of having been, discovered by EST approaches.

20

#### Comparison of Signal from Known and Unknown Genes

The normalized signal of the genes found to have high homology to genes present in the GenBank human EST database were compared to the normalized signal of those 25 genes not found in the GenBank human EST database. The data are shown in FIG. 8.

FIG. 8 shows the normalized Cy3 signal intensity for all sequence-verified products with a BLAST Expect ("E") value of greater than  $1e-30$  (designated "unknown") 30 upon query of existing EST, NR and SwissProt databases, and shows in blue the normalized Cy3 signal intensity for all sequence-verified products with a BLAST Expect value of less than  $1e-30$  ("known"). Note that biological background noise has an averaged normalized Cy3 signal intensity of 35 0.2.

As expected, the most highly expressed of the ORFs were "known" genes. This is not surprising, since very high signal intensity correlates with very commonly-expressed genes, which have a higher likelihood of being found by EST sequence.

However, a significant point is that a large number of even the high expressers were "unknown". Since the genomic approach used to identify genes and to confirm their expression does not bias exons toward either the 3' or 5' end of a gene, many of these high expression genes will not have been detected in an end-sequenced cDNA library.

The significant point is that presence of the gene in an EST database is not a prerequisite for incorporation into a genome-derived microarray, and further, that arraying such "unknown" exons can help to assign function to as-yet undiscovered genes.

#### Verification of Gene Expression

To ascertain the validity of the approach described above to identify genes from raw genomic sequence, expression of two of the probes was assayed using reverse transcriptase polymerase chain reaction (RT PCR) and northern blot analysis.

Two microarray probes were selected on the basis of exon size, prior sequencing success, and tissue-specific gene expression patterns as measured by the microarray experiments. The primers originally used to amplify the two respective ORFs from genomic DNA were used in RT PCR against a panel of tissue-specific cDNAs (Rapid-Scan gene expression panel 24 human cDNAs) (OriGene Technologies, Inc., Rockville, MD).

Sequence AL079300\_1 was shown by microarray hybridization to be present in cardiac tissue, and sequence AL031734\_1 was shown by microarray experiment to be present

in placental tissue (data not shown). RT-PCR on these two sequences confirmed the tissue-specific gene expression as measured by microarrays, as ascertained by the presence of a correctly sized PCR product from the respective tissue  
5 type cDNAs.

Clearly, all microarray results cannot, and indeed should not, be confirmed by independent assay methods, or the high throughput, highly parallel advantages of microarray hybridization assays will be lost. However,  
10 in addition to the two RT-PCR results presented above, the observation that 1/3 of the arrayed genes exist in expression databases provides powerful confirmation of the power of our methodology - which combines bioinformatic prediction with expression confirmation using genome-  
15 derived single exon microarrays - to identify novel genes from raw genomic data.

To verify that the approach further provides correct characterization of the expression patterns of the identified genes, a detailed analysis was performed of the  
20 microarrayed sequences that showed high signal in brain.

For this latter analysis, sequences that showed high (normalized) signal in brain, but which showed very low (normalized) signal (less than 0.5, determined to be biological noise) in all other tissues, were further  
25 studied. There were 82 sequences that fit these criteria, approximately 2% of the arrayed elements. The 10 sequences showing the highest signal in brain in microarray hybridizations are detailed in Table 2, along with assigned function, if known or reasonably predicted.

30

Table 2

|  |
|--|
| Function of the Most Highly<br>Expressed Genes Expressed Only in Brain |
|--|

| Microarray<br>Sequence<br>Name | Normal<br>ized<br>Signal | Expressi<br>on Ratio | Homology<br>to EST<br>present<br>in<br>GenBank | Gene Function<br>as described by<br>GenBank   |
|--------------------------------|--------------------------|----------------------|--|---|
| AP000217-1                     | 5.2                      | +7.7                 | High   | S-100 protein,<br>b-chain, Ca <sup>2+</sup><br>binding protein<br>expressed in<br>central nervous<br>system |
| AP000047-1                     | 2.3                      |                      | High   | Unknown<br>Function   |
| AC006548-9                     | 1.7                      |                      | High   | Similar to<br>mouse membrane<br>glyco-protein<br>M6, expressed<br>in central<br>nervous system              |
| AC007245-5                     | 1.5                      |                      | High   | Similar to<br>amphiphysin, a<br>synaptic<br>vesicle-<br>associated<br>protein. Ref 21                       |
| L44140-4                       | 1.2                      | +2.0                 | High   | Endothelial<br>actin-binding<br>protein found<br>in nonmuscle<br>filamin                                    |
| AC004689-9                     | 1.2                      | +3.5                 | High   | Protein<br>Phosphatase<br>PP2A, neuronal/<br>downregulates  |



|            |     |      |      |  |
|------------|-----|------|------|--|
|            |     |      |      | activated<br>protein kinases   |
| AL031657-1 | 1.2 | +3.0 | High | Unknown<br>function/<br>Contains the<br>anhyrin motif,<br>a common<br>protein<br>sequence motif                    |
| AC009266-2 | 1.1 | +3.7 | Low  | Low homology to<br>the<br>Synaptotagmin I<br>protein in<br>rat/present at<br>low levels<br>throughout rat<br>brain |
| AP000086-1 | 1.0 | +2.7 | Low  | Unknown, very<br>poor homology<br>to collagen  |
| AC004689-3 | 1.0 |      | High | Protein<br>Phosphatase<br>PP2A, neuronal/<br>downregulates<br>activated<br>protein kinases                         |

Of the ten sequences studied by these latter confirmatory approaches, eight were previously known. Of these eight, six had previously been reported to be important in the central nervous system or brain. The exon giving the highest signal (AP00217-1) was found to be the gene encoding an S100B  $\text{Ca}^{2+}$  binding protein, reported in the literature to be highly and uniquely expressed in the central nervous system. Heizmann, *Neurochem. Res.* 9:1097

(1997).

A number of the brain-specific probe sequences (including AC006548-9, AC009266-2) did not have homology to any known human cDNAs in GenBank but did show homology to  
5 rat and mouse cDNAs. Sequences AC004689-9 and AC004689-3 were both found to be phosphatases present in neurons (Millward et al., *Trends Biochem. Sci.* 24(5):186-191 (1999)). Two microarray sequences, AP000047-1 and AP000086-1 have unknown function, with AP000086-1 being  
10 absent from GenBank. Functionality can now be narrowed down to a role in the central nervous system for both of these genes, showing the power of designing microarrays in this fashion.

Next, the function of the chip sequences with the  
15 highest (normalized) signal intensity in brain, regardless of expression in other tissues, was assessed. In this latter analysis, we found expression of many more common genes, since the sequences were not limited to those expressed only in brain. For example, looking at the 20  
20 highest signal intensity spots in brain, 4 were similar to tubulin (AC00807905; AF146191-2; AC007664-4; AF14191-2), 2 were similar to actin (AL035701-2; AL034402-1), and 6 were found to be homologous to glyceraldehyde-3-phosphate dehydrogenase (GAPDH) (AL035604-1; Z86090-1; AC006064-L,  
25 AC006064-K; AC035604-3; AC006064-L). These genes are often used as controls or housekeeping genes in microarray experiments of all types.

Other interesting genes highly expressed in brain were a ferritin heavy chain protein, which is reported in  
30 the literature to be found in brain and liver (Joshi et al., *J. Neurol. Sci.* 134(Suppl):52-56 (1995)), a result duplicated with the array. Other highly expressed chip sequences included a translation elongation factor 1 $\alpha$  (AC007564-4), a DEAD-box homolog (AL023804-4), and a Y-  
35 chromosome RNA-binding motif (Chai et al., *Genomics*

49(2):283-89 (1998)) (AC007320-3). A low homology analog (AP00123-1/2) to a gene, DSCR1, thought to be involved in trisomy 21 (Down's syndrome), showed high expression in both brain and heart, in agreement with the literature (Fuentes et al., Mol. Genet. 4(10):1935-44 (1995)).

As a further validation of the approach, we selected the BAC AC006064 to be included on the array. This BAC was known to contain the GAPDH gene, and thus could be used as a control for the ORF selection process.

The gene finding and exon selection algorithms resulted in choosing 25 exons from BAC AC006064 for spotting onto the array, of which four were drawn from the GAPDH gene. Table 3 shows the comparison of the average expression ratio for the 4 exons from BAC006064 compared with the average expression ratio for 5 different dilutions of a commercially available GAPDH cDNA (Clontech).

Table 3

| Comparison of Expression Ratio, for each tissue, of GAPDH |                  |                 |
|---|------------------|-----------------|
|   | AC006064 (n = 4) | Control (n = 5) |
| Bone Marrow   | -1.81 ± 0.11     | -1.85 ± 0.08    |
| Brain   | -1.41 ± 0.11     | -1.17 ± 0.05    |
| BT474   | 1.85 ± 0.09      | 1.66 ± 0.12     |
| Fetal Liver   | -1.62 ± 0.07     | -1.41 ± 0.05    |
| HBL100  | 1.32 ± 0.05      | 2.64 ± 0.12     |
| Heart   | 1.16 ± 0.09      | 1.56 ± 0.10     |
| HeLa  | 1.11 ± 0.06      | 1.30 ± 0.15     |
| Liver   | -1.62 ± 0.22     | -2.07 ±         |
| Lung  | -4.95 ± 0.93     | -3.75 ± 0.21    |
| Placenta  | -3.56 ± 0.25     | -3.52 ± 0.43    |

Each tissue shows excellent agreement between the experimentally chosen exons and the control, again demonstrating the validity of the present exon mining approach. In addition, the data also show the variability of expression of GAPDH within tissues, calling into question its classification as a housekeeping gene and utility as a housekeeping control in microarray experiments.

### 10 EXAMPLE 3

Representation of Sequence and Expression Data as a "Mondrian"

For each genomic clone processed for microarray as above-described, a plethora of information was accumulated, including full clone sequence, probe sequence within the clone, results of each of the three gene finding programs, EST information associated with the probe sequences, and microarray signal and expression for multiple tissues, challenging our ability to display the information.

Accordingly, we devised a new tool for visual display of the sequence with its attendant annotation which, in deference to its visual similarity to the paintings of Piet Mondrian, is hereinafter termed a "Mondrian". FIGS. 3 and 4 present the key to the information presented on a Mondrian.

FIG. 9 presents a Mondrian of BAC AC008172 (bases 25,000 to 130,000 shown), containing the carbamyl phosphate synthetase gene (AF154830.1). Purple background within the region shown as field 81 in FIG. 3 indicates all 37 known exons for this gene.

As can be seen, GRAIL II successfully identified 27 of the known exons (73%), GENEFINDER successfully identified 37 of the known exons (100%), while DICTION

identified 7 of the known exons (19%).

Seven of the predicted exons were selected for physical assay, of which 5 successfully amplified by PCR and were sequenced. These five exons were all found to be from the same gene, the carbamyl phosphate synthetase gene (AF154830.1).

The five exons were arrayed, and gene expression measured across 10 tissues. As is readily seen in the Mondrian, the five chip sequences on the array show identical expression patterns, elegantly demonstrating the reproducibility of the system.

FIG. 10 is a Mondrian of BAC AL049839. We selected 12 exons from this BAC, of which 10 successfully sequenced, which were found to form between 5 and 6 genes. Interestingly, 4 of the genes on this BAC are protease inhibitors. Again, these data elegantly show that exons selected from the same gene show the same expression patterns, depicted below the red line. From this figure, it is clear that our ability to find known genes is very good. A novel gene is also found from 86.6 kb to 88.6 kb, upon which all the exon finding programs agree. We are confident we have two exons from a single gene since they show the same expression patterns and the exons are proximal to each other. Backgrounds in the following colors indicate a known gene (top to bottom): red = kallistatin protease inhibitor (P29622); purple = plasma serine protease inhibitor (P05154); turquoise =  $\alpha$ 1 anti-chymotrypsin (P01011); mauve = 40S ribosomal protein (P08865). Note that chip sequence 8 and 12 did not sequence verify.

#### EXAMPLE 4

Genome-Derived Single Exon Probes Useful For Measuring Human Gene Expression

The protocols set forth in Examples 1 and 2, *supra*, were applied to additional human genomic sequence as it became newly available in GenBank to identify unique  
5 exons in the human genome that could be shown to be expressed at significant levels in placenta tissue.

These unique exons are within longer probe sequences. Each probe was completely sequenced on both strands prior to its use on a genome-derived single exon  
10 microarray; sequencing confirms the exact chemical structure of each probe. An added benefit of sequencing is that it placed us in possession of a set of single base-incremented fragments of the sequenced nucleic acid, starting from the sequencing primer 3' OH. (Since the  
15 single exon probes were first obtained by PCR amplification from genomic DNA, we were of course additionally in possession of an even larger set of single base incremented fragments of each of the 13,232 single exon probes, each fragment corresponding to an extension product from one of  
20 the two amplification primers.)

The structures of the 13,232 unique single exon probes are clearly presented in the Sequence Listing as SEQ ID Nos.: 1 - 13,232 . The 16 nt 5' primer sequence and 16 nt 3' primer sequence present on the amplicon are not  
25 included in the sequence listing. The sequences of the exons present within each of these probes is presented in the Sequence Listing as SEQ ID Nos.: 13,233 - 26,232, respectively. It will be noted that some amplicons have more than one exon, some exons are contained in more than  
30 one amplicon.

As detailed in Example 2, expression was demonstrated by disposing the amplicons as single exon probes on nucleic acid microarrays and then performing two-color fluorescent hybridization analysis; significant  
35 expression is based on a statistical confidence that the

signal is significantly greater than negative biological control spots. The negative biological control is formed from spotted DNA sequences from a different species. Here, 32 sequences from E.Coli were spotted in duplicate to give a total of 64 spots.

For each hybridisation (each slide, each colour) the median value of the signal from all of the spots is determined. The normalised signal value is the arithmetic mean of the signal from duplicate spots divided by the population median.

Control spots are eliminated if there is more than a five-fold difference between each one of the duplicate spots raw signals.

The median of the signal from the remaining control spots is calculated and all subsequent calculations are done with normalised signals.

Control spots having a signal of greater than median + 2.4 (the value 2.4 is roughly 12 times the observed standard deviation of control spot populations) are eliminated. Spots with such high signals are considered to be "outliers".

The mean and standard deviation of the modified control spot populations are calculated.

The mean + 3x the standard deviation (mean + (3\*SD)) is used as the signal threshold qualifier for that particular hybridisation. Thus, individual thresholds are determined for each channel and each hybridisation.

This means that, assuming that the data is distributed normally, there is a 99% confidence that any signal exceeding the threshold is significant.

The probes and their expression data are presented in Table 4, set forth respectively in Example 5. Example 5 presents the subset of probes that is significantly expressed in the human placenta and thus presents the subset of probes that was recognized to be

useful for measuring expression of their cognate genes in human placenta tissue.

The sequence of each of the exon probes identified by SEQ ID NOS.: 13,233 - 26,232 was individually  
5 used as a BLAST (or, for SWISSPROT, BLASTX) query to identify the most similar sequence in each of dbEST, SwissProt (BLASTX), and NR divisions of GenBank. Because the query sequences are themselves derived from genomic sequence in GenBank, only nongenic hits from NR were  
10 scored.

The smallest in value of the BLAST (or BLASTX) expect ("E") scores for each query sequence across the three database divisions was used as a measure of the "expression novelty" of the probe's ORF. Table 4 is sorted  
15 in descending order based on this measure, reported as "Most Similar (top) Hit BLAST E Value". Those sequences for which no "Hit E Value" is listed are those exons which were found to have no similar sequences.

As sorted, Table 4 thus lists its respective  
20 probes (by "AMPLICON SEQ ID NO.:" and additionally by the SEQ ID NO.: of the exon contained within the probe:"EXON SEQ ID NO.:") from least similar to sequences known to be expressed (i.e., highest BLAST E value), at the beginning of the table, to most similar to sequences known to be  
25 expressed (i.e., lowest BLAST E value), at the bottom of the table.

Table 4 further provides, for each listed probe, the accession number of the database sequence that yielded the "Most Similar (top) Hit BLAST E Value", along with the  
30 name of the database in which the database sequence is found ("Top Hit Database Source").

Table 4 further provides SEQ ID NOS. corresponding to the predicted amino acid sequences where they have been determined for the probe and exon nucleotide  
35 sequences. These are set out as PEPTIDE SEQ ID NOS.: The



peptide sequences for a given exon are predicted as follows: Since each chip exon is a consensus sequence drawn from predictions from various exon finding programs (i.e. Grail, GeneFinder and GenScan), the multiple initial ORFs  
5 are first determined in a uniform way according to each prediction. In particular, the reading frame for predicting the first amino acid in the peptide sequence always starts with the first base of any codon and ends with the last base of non-termination codon. Next, for each strand of the  
10 exon, initial ORFs are merged into one or more final ORFs in an exhaustive process based on the following criteria: 1) the merging ORFs must be overlapping, and 2) the merging ORFs must be in the same frame.

The Sequence Listing, which is a superset of all  
15 of the data presented in Table 4, further includes, for each probe, the most similar hit, with accession number and BLAST E value, from the each of the three queried databases.

Table 4 further lists, for each probe, a portion  
20 of the descriptor for the top hit ("Top Hit Descriptor") as provided in the sequence database. For those ORFs that are similar in sequence, but nonidentical to known sequences (e.g., those with BLAST E values between about  $1e-05$  and  $1e-100$ ), the descriptor reveals the likely function of the  
25 protein encoded by the probe's ORF.

Using BLAST E value cutoffs of  $1e-05$  (i.e.,  $1 \times 10^{-5}$ ) and  $1e-100$  (i.e.,  $1 \times 10^{-100}$ ) as evidence of similarity to sequences known to be expressed is of course arbitrary: in Example 2, *supra*, a BLAST E value of  $1e-30$  was used as  
30 the boundary when only two classes were to be defined for analysis (unknown,  $>1e-30$ ; known  $<1e-30$ ) (see also FIG. 8). Furthermore, even when the "Most Similar (Top) Hit BLAST E Value" is low, e.g., less than about  $1e-100$  — which is probative evidence that the query sequence has previously  
35 been shown to be expressed — the top hit is highly unlikely

exactly to match the probe sequence.

First, such expression entries typically will not have the intronic and/or intergenic sequence present within the single exon probes listed in the Table. Second, even  
5 the ORF itself is unlikely in such cases to be present identically in the databases, since most of the EST and mRNA clones in existing databases include multiple exons, without any indication of the location of exon boundaries.

As noted, the data presented in Table 4 represent  
10 a proper subset of the data present within the attached sequence listing. For each amplicon probe (SEQ ID NOs.: 1 - 13,232) and probe exon (SEQ ID NOs.: 13,233 - 26,232, respectively), the sequence listing further provides, through iterated annotation fields <220> and <223>:

15 (a) the accession number of the BAC from which the sequence was derived ("MAP TO"), thus providing a link to the chromosomal map location and other information about the genomic milieu of the probe sequence;

(b) the most similar sequence provided by BLAST  
20 query of the EST database, with accession number and BLAST E value for the "hit";

(c) the most similar sequence provided by BLAST query of the GenBank NR database, with accession number and BLAST E value for the "hit"; and

25 (d) the most similar sequence provided by BLASTX query of the SWISSPROT database, with accession number and BLAST E value for the "hit".

### 30 EXAMPLE 5

Genome-Derived Single Exon Probes Useful For Measuring Expression of Genes in Human Placenta

Table 4 (550 pages) presents expression, homology, and  
35 functional information for the genome-derived single exon

probes that are expressed significantly in human placenta.

Page 1 of 550  
Table 4  
Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--------------------|
| 463                    | 13658                 | 26695             | 5                    |   |                          |                               |                    |
| 912                    | 14087                 | 27162             | 8.68                 |   |                          |                               |                    |
| 1070                   | 14236                 |                   | 3.01                 |   |                          |                               |                    |
| 1330                   | 14487                 | 27555             | 10.9                 |   |                          |                               |                    |
| 1645                   | 14707                 | 27882             | 1.82                 |   |                          |                               |                    |
| 1668                   | 14818                 | 27901             | 4.94                 |   |                          |                               |                    |
| 1784                   | 14913                 | 28008             | 1.03                 |   |                          |                               |                    |
| 1788                   | 14937                 | 28030             | 1.67                 |   |                          |                               |                    |
| 1794                   | 14943                 | 28036             | 8.53                 |   |                          |                               |                    |
| 1939                   | 15082                 | 28163             | 1.57                 |   |                          |                               |                    |
| 2034                   | 15175                 | 28285             | 2.68                 |   |                          |                               |                    |
| 2234                   | 15368                 | 28497             | 3.39                 |   |                          |                               |                    |
| 2353                   | 15484                 | 28616             | 2.53                 |   |                          |                               |                    |
| 3256                   | 16429                 | 29447             | 3.75                 |   |                          |                               |                    |
| 3637                   | 16702                 | 29713             | 1.48                 |   |                          |                               |                    |
| 3604                   | 16768                 | 29763             | 10.5                 |   |                          |                               |                    |
| 3651                   | 16814                 |                   | 0.84                 |   |                          |                               |                    |
| 3747                   | 16908                 | 29812             | 0.98                 |   |                          |                               |                    |
| 4057                   | 17213                 |                   | 0.94                 |   |                          |                               |                    |
| 4314                   | 17457                 | 30445             | 1.55                 |   |                          |                               |                    |
| 4377                   | 17520                 | 30500             | 8.88                 |   |                          |                               |                    |
| 4396                   | 17539                 | 30519             | 0.87                 |   |                          |                               |                    |
| 4390                   | 17539                 | 30520             | 0.87                 |   |                          |                               |                    |
| 4457                   | 17597                 |                   | 1.89                 |   |                          |                               |                    |
| 4512                   | 17651                 | 30639             | 0.61                 |   |                          |                               |                    |
| 4658                   | 18088                 | 31064             | 1.86                 |   |                          |                               |                    |
| 6002                   | 18131                 |                   | 0.6                  |   |                          |                               |                    |
| 5157                   | 18279                 | 31244             | 5.14                 |   |                          |                               |                    |
| 5169                   | 18280                 | 31255             | 1.24                 |   |                          |                               |                    |
| 5371                   | 18574                 | 31442             | 1.76                 |   |                          |                               |                    |
| 5371                   | 18574                 | 31443             | 1.78                 |   |                          |                               |                    |
| 5538                   | 18735                 |                   | 4.12                 |   |                          |                               |                    |
| 5714                   | 18907                 |                   | 7.26                 |   |                          |                               |                    |
| 5706                   | 18735                 |                   | 3.31                 |   |                          |                               |                    |

Page 2 of 550

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 5858                   | 19048                 | 32354             | 4.22                 |   |                          |                               |  |
| 6146                   | 25820                 | 32868             | 1.61                 |   |                          |                               |  |
| 6174                   | 10350                 | 32806             | 1.92                 |   |                          |                               |  |
| 6546                   | 19708                 |                   | 1.01                 |   |                          |                               |  |
| 6679                   | 19338                 | 33220             | 1.25                 |   |                          |                               |  |
| 6679                   | 19338                 | 33227             | 1.25                 |   |                          |                               |  |
| 7275                   | 20358                 | 33812             | 1.42                 |   |                          |                               |  |
| 7276                   | 20358                 | 33813             | 1.42                 |   |                          |                               |  |
| 7569                   | 20541                 | 34117             | 1.18                 |   |                          |                               |  |
| 7569                   | 20541                 | 34118             | 1.18                 |   |                          |                               |  |
| 8251                   | 21333                 | 34851             | 1.44                 |   |                          |                               |  |
| 8682                   | 21762                 | 35206             | 1.14                 |   |                          |                               |  |
| 9061                   | 22140                 | 36894             | 0.76                 |   |                          |                               |  |
| 9061                   | 22140                 | 35895             | 0.76                 |   |                          |                               |  |
| 9734                   | 22789                 | 39373             | 3.82                 |   |                          |                               |  |
| 9868                   | 23007                 | 36802             | 0.56                 |   |                          |                               |  |
| 10086                  | 23124                 | 36725             | 1.51                 |   |                          |                               |  |
| 10229                  | 23264                 | 39853             | 0.88                 |   |                          |                               |  |
| 10843                  | 23677                 | 37286             | 0.74                 |   |                          |                               |  |
| 10843                  | 23677                 | 37287             | 0.74                 |   |                          |                               |  |
| 10822                  | 24005                 |                   | 2.32                 |   |                          |                               |  |
| 11280                  | 24346                 |                   | 1.76                 |   |                          |                               |  |
| 11348                  | 24410                 | 38063             | 2.79                 |   |                          |                               |  |
| 11641                  | 24721                 | 38414             | 1.73                 |   |                          |                               |  |
| 11749                  | 23835                 | 37561             | 1.36                 |   |                          |                               |  |
| 11749                  | 23835                 | 37562             | 1.36                 |   |                          |                               |  |
| 11782                  | 24782                 |                   | 2.09                 |   |                          |                               |  |
| 12057                  | 25038                 | 38746             | 1.56                 |   |                          |                               |  |
| 12823                  | 25410                 |                   | 2.06                 |   |                          |                               |  |
| 12867                  | 25828                 | 31890             | 1.5                  |   |                          |                               |  |
| 8177                   | 19353                 | 32700             | 10.82                | 9.8E+00                                       | AJ238028.1               | NT                            | Homo sapiens LSS gene, partial, exons 15, 16, 17 and 18            |
| 8195                   | 21277                 | 34800             | 1.5                  | 9.8E+00                                       | U32716.1                 | NT                            | Haemophilus influenzae Rd section 31 of 163 of the complete genome |
| 9944                   | 22983                 | 36575             | 0.48                 | 9.8E+00                                       | Y18930.1                 | NT                            | Sulfolobus solfataricus 281 kb genomic DNA fragment, strain P2     |
| 9944                   | 22983                 | 36576             | 0.48                 | 9.8E+00                                       | Y18930.1                 | NT                            | Sulfolobus solfataricus 281 kb genomic DNA fragment, strain P2     |

Page 3 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 7139                   | 20274                 | 33714             | 0.82                 | 9.0E+00                                       | AF065630.1               | NT                            | Gallus gallus ornithine transcarbamylase (OTC) gene, exon 1  |
| 7139                   | 20274                 | 33715             | 0.82                 | 9.0E+00                                       | AF065630.1               | NT                            | Gallus gallus ornithine transcarbamylase (OTC) gene, exon 1  |
| 10536                  | 23670                 | 37279             | 0.93                 | 9.0E+00                                       | AF242432.1               | NT                            | Mus musculus Nalp3 gene, exon 1; neuronal apoptosis inhibitory protein 1 (Nalp1) and general transcription factor IIf1 polypeptide 2 (Gtf2h2) genes, complete cds                |
| 10536                  | 23670                 | 37280             | 0.93                 | 9.0E+00                                       | AF242432.1               | NT                            | Mus musculus Nalp3 gene, exon 1; neuronal apoptosis inhibitory protein 1 (Nalp1) and general transcription factor IIf1 polypeptide 2 (Gtf2h2) genes, complete cds                |
| 2731                   | 18949                 | 28959             | 0.97                 | 9.4E+00                                       | L11433.1                 | NT                            | Dengue virus type 3 membrane protein (prM/M) envelope glycoprotein (E) polypeptide mRNA, partial cds   |
| 2731                   | 18949                 | 28960             | 0.97                 | 9.4E+00                                       | L11433.1                 | NT                            | Dengue virus type 3 membrane protein (prM/M) envelope glycoprotein (E) polypeptide mRNA, partial cds   |
| 2890                   | 16166                 | 28182             | 3.08                 | 9.4E+00                                       | AB043785.1               | NT                            | Mus musculus AT3 gene for antithrombin, complete cds   |
| 8290                   | 21372                 | 34893             | 1.08                 | 9.3E+00                                       | AF130900.1               | NT                            | Homo sapiens ectodysplasin-A receptor protein (EDAR) gene, exons 2, 3, and 4   |
| 9204                   | 22282                 | 35822             | 3.03                 | 9.3E+00                                       | P11210                   | SWISSPROT                     | IMMEDIATE-EARLY PROTEIN 1 (IE1) (IMMEDIATE-EARLY PHOSPHOPROTEIN PP88)  |
| 7625                   | 20695                 | 34171             | 0.6                  | 9.2E+00                                       | Q61767                   | SWISSPROT                     | 3 BETA-HYDROXYSTEROID DEHYDROGENASE TYPE IV (3BETA-HSD IV) (3-BETA-HYDROXY-DELTA(5)-STEROID DEHYDROGENASE) (3-BETA-HYDROXY-5-ENE STEROID DEHYDROGENASE) (PROGESTERONE REDUCTASE) |
| 5411                   | 18613                 | 31586             | 2.59                 | 9.1E+00                                       | AF095008.1               | NT                            | Leuiscus cephalus orientalis cytochrome b (cyt b) gene, partial cds; mitochondrial gene for mitochondrial product  |
| 5411                   | 18613                 | 31587             | 2.59                 | 9.1E+00                                       | AF095008.1               | NT                            | Leuiscus cephalus orientalis cytochrome b (cyt b) gene, partial cds; mitochondrial gene for mitochondrial product  |
| 9630                   | 22685                 |                   | 1                    | 9.0E+00                                       | P09241                   | SWISSPROT                     | RHODOPSIN  |
| 6160                   | 19336                 | 32681             | 5.15                 | 8.9E+00                                       | BE971806.1               | EST_HUMAN                     | 601651038R1 NIH_MGC_61 Homo sapiens cDNA clone IMAGE:3934592 3'  |
| 6510                   | 19675                 | 33044             | 2.03                 | 8.7E+00                                       | AB019788.1               | NT                            | Cynops pyrrhogaster Cp1bx3 premature mRNA, partial cds   |
| 6510                   | 19675                 | 33045             | 2.03                 | 8.7E+00                                       | AB019788.1               | NT                            | Cynops pyrrhogaster Cp1bx3 premature mRNA, partial cds   |
| 453                    | 13649                 | 26685             | 1.78                 | 8.4E+00                                       | 6031804                  | NT                            | Homo sapiens insulin receptor substrate 1 (IRS1) mRNA  |
| 9654                   | 21097                 | 34611             | 2.09                 | 8.1E+00                                       | AL131719.1               | NT                            | Zea mays mRNA for legumain-like protease (seca2a)  |
| 11443                  | 24504                 |                   | 1.96                 | 8.0E+00                                       | P41820                   | SWISSPROT                     | BREFELDIN A RESISTANCE PROTEIN   |
| 8345                   | 21428                 |                   | 0.98                 | 7.9E+00                                       | Z21489.1                 | NT                            | African swine fever virus NP1450L gene encoding RNA polymerase largest subunit   |
| 7501                   | 20576                 |                   | 1.85                 | 7.5E+00                                       | AL445065.1               | NT                            | Thermoplasma acidophilum complete genome; segment 3/5  |
| 8566                   | 21637                 | 35174             | 1.42                 | 7.6E+00                                       | P36441                   | SWISSPROT                     | THROMBOSPONDIN 1 PRECURSOR   |
| 8556                   | 21637                 | 35175             | 1.42                 | 7.5E+00                                       | P36441                   | SWISSPROT                     | THROMBOSPONDIN 1 PRECURSOR   |
| 5621                   | 16108                 | 32421             | 3.6                  | 7.4E+00                                       | BF700517.1               | EST_HUMAN                     | 602126870F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:4285508 5'  |
| 8953                   | 22032                 | 35573             | 3                    | 7.4E+00                                       | P04929                   | SWISSPROT                     | HISTIDINE-RICH GLYCOPROTEIN PRECURSOR  |
| 8953                   | 22032                 | 35574             | 3                    | 7.4E+00                                       | P04929                   | SWISSPROT                     | HISTIDINE-RICH GLYCOPROTEIN PRECURSOR  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 3042                   | 16218                 | 28238             | 3.41                 | 7.2E+00                                       | L12051.1                 | NT                            | Lycopodium esculentum Mill. GTPase (SAR2) mRNA, complete cds  |
| 3042                   | 16218                 | 28239             | 3.41                 | 7.2E+00                                       | L12051.1                 | NT                            | Lycopodium esculentum Mill. GTPase (SAR2) mRNA, complete cds  |
| 7174                   | 20307                 | 33760             | 1.07                 | 7.2E+00                                       | BE170030.1               | EST_HUMAN                     | RCO-HT0813-200300-031-c07 HT0813 Homo sapiens cDNA  |
| 7289                   | 20381                 | 33838             | 1.22                 | 7.1E+00                                       | P28168                   | SWISSPROT                     | ZINC-FINGER PROTEIN 1 (ZINC-FINGER HOMEODOMAIN PROTEIN 1)   |
| 7289                   | 20381                 | 33839             | 1.22                 | 7.1E+00                                       | P28168                   | SWISSPROT                     | ZINC-FINGER PROTEIN 1 (ZINC-FINGER HOMEODOMAIN PROTEIN 1)   |
| 9798                   | 22888                 |                   | 8.23                 | 7.1E+00                                       | AL161595.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 91   |
| 11688                  | 24745                 | 38437             | 2.44                 | 7.1E+00                                       | P05850                   | SWISSPROT                     | HYPOTHETICAL 17.3 KDA PROTEIN IN MRDA-PHPB INTERGENIC REGION  |
| 10187                  | 23224                 | 36818             | 2.78                 | 7.0E+00                                       | P48810                   | SWISSPROT                     | ARGININE KINASE (AK)  |
| 11628                  | 24584                 | 38261             | 1.52                 | 7.0E+00                                       | O22469                   | SWISSPROT                     | WD-40 REPEAT PROTEIN MS3  |
| 8478                   | 21559                 | 35083             | 3.17                 | 6.9E+00                                       | P35879                   | SWISSPROT                     | 80S RIBOSOMAL PROTEIN L4 (L2)   |
| 10559                  | 23594                 | 37200             | 1.12                 | 6.9E+00                                       | P44834                   | SWISSPROT                     | DNA MISMATCH REPAIR PROTEIN MUTS  |
| 10679                  | 28814                 | 37219             | 0.8                  | 6.9E+00                                       | P34228                   | SWISSPROT                     | SKT5 PROTEIN  |
| 8092                   | 21174                 | 34688             | 1.64                 | 6.8E+00                                       | W03412.1                 | EST_HUMAN                     | 2807c11.1 Scores melanocyte 2NIH-Homo sapiens cDNA clone IMAGE:291860 5'  |
| 8092                   | 21174                 | 34689             | 1.64                 | 6.8E+00                                       | W03412.1                 | EST_HUMAN                     | 2807c11.1 Scores melanocyte 2NIH-Homo sapiens cDNA clone IMAGE:291860 5'  |
| 8333                   | 22409                 |                   | 1.62                 | 6.8E+00                                       | P38307                   | SWISSPROT                     | OUTER CAPSID PROTEIN VP4 (HEMAGGLUTININ) (OUTER LAYER PROTEIN VP4) [CONTAINS:<br>OUTER CAPSID PROTEINS VP5 AND VP8] |
| 10413                  | 23448                 | 37053             | 3.6                  | 6.8E+00                                       | Q09570                   | SWISSPROT                     | HYPOTHETICAL 157.0 KDA PROTEIN C38C10.5 IN CHROMOSOME III   |
| 8398                   | 18500                 |                   | 0.86                 | 6.8E+00                                       | Q08028                   | SWISSPROT                     | CATECHOL-O-METHYLTRANSFERASE, SOLUBLE FORM (S-COMT)   |
| 6675                   | 19834                 | 33223             | 0.86                 | 6.8E+00                                       | BF672121.1               | EST_HUMAN                     | 802162573F1 NIH_MGC_81 Homo sapiens cDNA clone IMAGE:4293427 5'   |
| 8234                   | 20228                 |                   | 0.55                 | 6.8E+00                                       | P51825                   | SWISSPROT                     | AF-4 PROTEIN (FEL PROTEIN)  |
| 10279                  | 23314                 | 36912             | 2.14                 | 6.8E+00                                       | Q07E07                   | SWISSPROT                     | URIDYLATE KINASE (UK) (URIDINE MONOPHOSPHATE KINASE) (UMP KINASE)   |
| 10279                  | 23314                 | 36913             | 2.14                 | 6.8E+00                                       | Q07E07                   | SWISSPROT                     | URIDYLATE KINASE (UK) (URIDINE MONOPHOSPHATE KINASE) (UMP KINASE)   |
| 10843                  | 23878                 | 37498             | 0.47                 | 6.8E+00                                       | H28330.1                 | EST_HUMAN                     | Yn8006.c1 Scores infant brain 1N1B Homo sapiens cDNA clone IMAGE:52737 3'   |
| 11393                  | 24454                 |                   | 1.48                 | 6.8E+00                                       | Q10308                   | SWISSPROT                     | PROBABLE CATION-TRANSPORTING ATPASE C8C3.05C  |
| 9382                   | 22457                 | 36020             | 7                    | 6.5E+00                                       | P03374                   | SWISSPROT                     | ENV POLYPROTEIN [CONTAINS: COAT PROTEIN GP82; COAT PROTEIN GP36]  |
| 10512                  | 23547                 | 37158             | 0.52                 | 6.5E+00                                       | BE888001.1               | EST_HUMAN                     | 601678435F1 NIH_MGC_53 Homo sapiens cDNA clone IMAGE:3880989 5'   |
| 8943                   | 22882                 | 36574             | 1.34                 | 6.2E+00                                       | AY010801.1               | NT                            | Schizosaccharomyces pombe unknown mRNA  |
| 10787                  | 23620                 | 37444             | 0.7                  | 6.2E+00                                       | G754621                  | NT                            | Mus musculus marmosin class 2, alpha B1 (Mar2b1), mRNA  |
| 7181                   | 20313                 | 33766             | 1.8                  | 6.0E+00                                       | BE780163.1               | EST_HUMAN                     | 601468031F1 NIH_MGC_87 Homo sapiens cDNA clone IMAGE:3871303 5'   |
| 10021                  | 23059                 | 36855             | 0.49                 | 6.0E+00                                       | AF000008.1               | NT                            | Pyrococcus horikoshii OT3 genome DNA, 1169001-1495000 nt, position (87)   |
| 10732                  | 23785                 | 37373             | 0.82                 | 6.0E+00                                       | AE001862.1               | NT                            | Deinococcus radiodurans R1 section 1 of 2 of the complete chromosome 2  |
| 10732                  | 23785                 | 37374             | 0.82                 | 6.0E+00                                       | AE001862.1               | NT                            | Deinococcus radiodurans R1 section 1 of 2 of the complete chromosome 2  |
| 6650                   | 19808                 | 33197             | 7.14                 | 6.9E+00                                       | AF158142.1               | NT                            | Mus musculus mixed lineage kinase 3 (Mlk3) and two pore domain K+ channel subunit (Kcnk46) genes, complete cds      |

Page 5 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 11833                  | 24819                 |                   | 3.02                 | 5.9E+00                                       | BE98630.1                | EST_HUMAN                     | 601648279F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:3830461 5'                                    |
| 3613                   | 16777                 |                   | 1.15                 | 5.8E+00                                       | 7681557                  | NT                            | Homo sapiens DESC1 protein (DESC1), mRNA   |
| 7312                   | 20304                 | 33855             | 0.74                 | 6.7E+00                                       | AF302046.1               | NT                            | Mus musculus immunoglobulin scavenger receptor IgSR mRNA, complete cds                             |
| 7312                   | 20384                 | 33856             | 0.74                 | 5.7E+00                                       | AF302046.1               | NT                            | Mus musculus immunoglobulin scavenger receptor IgSR mRNA, complete cds                             |
| 7742                   | 20803                 |                   | 1.34                 | 5.6E+00                                       | P75080                   | SW/ISSPROT                    | DNA POLYMERASE III, ALPHA CHAIN POLG-TYPE (POLIII)   |
| 11289                  | 24355                 | 37898             | 2.03                 | 5.6E+00                                       | AB027305.1               | NT                            | Cyprinus carpio mRNA for lysoczyme C, complete cds   |
| 11289                  | 24355                 | 37897             | 2.03                 | 5.6E+00                                       | AB027305.1               | NT                            | Cyprinus carpio mRNA for lysoczyme C, complete cds   |
| 11765                  | 23951                 | 37881             | 2.62                 | 5.6E+00                                       | Q56278                   | SW/ISSPROT                    | LYCOPENE BETA CYCLASE  |
| 6381                   | 19550                 | 32908             | 0.74                 | 5.5E+00                                       | P47447                   | SW/ISSPROT                    | HEAT-INDUCIBLE TRANSCRIPTION REPRESSOR HRC4  |
| 8882                   | 23021                 |                   | 0.68                 | 5.6E+00                                       | P19883                   | SW/ISSPROT                    | EXTENSIN PRECURSOR (CELL WALL HYDROXYPROLINE-RICH GLYCOPROTEIN)                                    |
| 11018                  | 24087                 |                   | 1.48                 | 5.5E+00                                       | AF175425.1               | NT                            | Mus musculus DNA methyltransferase (Dnmt1) gene, exons 30, 31, and 32                              |
| 11763                  | 23949                 | 37578             | 2.32                 | 5.6E+00                                       | P11830                   | SW/ISSPROT                    | PNEUMOLYSIN (THIOL-ACTIVATED CYTOLYSIN)  |
| 7069                   | 20122                 | 33636             | 1.11                 | 5.4E+00                                       | X02212.1                 | NT                            | Chicken alpha-cardiac actin gene   |
| 7069                   | 20122                 | 33637             | 1.11                 | 5.4E+00                                       | X02212.1                 | NT                            | Chicken alpha-cardiac actin gene   |
| 7484                   | 20559                 |                   | 1.04                 | 5.4E+00                                       | Q89435                   | SW/ISSPROT                    | NEL PROTEIN PRECURSOR (NEL-RELATED PROTEIN 2)  |
| 8013                   | 21063                 | 34575             | 0.74                 | 5.4E+00                                       | P50391                   | SW/ISSPROT                    | NEUROPEPTIDE Y RECEPTOR TYPE 4 (NPY4R) (PANCREATIC POLYPEPTIDE RECEPTOR 1) (PP1)                   |
| 8054                   | 21137                 |                   | 1.62                 | 5.4E+00                                       | Q81062                   | SW/ISSPROT                    | VITELLOGENIN PRECURSOR (VTG) [CONTAINS: LIPOVITELLIN LV-1N; LIPOVITELLIN LV-1G; LIPOVITELLIN LV-2] |
| 8969                   | 22078                 | 35818             | 0.93                 | 5.4E+00                                       | P40379                   | SW/ISSPROT                    | REP1 PROTEIN   |
| 8969                   | 22078                 | 35819             | 0.93                 | 5.4E+00                                       | P40379                   | SW/ISSPROT                    | REP1 PROTEIN   |
| 10242                  | 23277                 | 36870             | 1.45                 | 5.4E+00                                       | Q17084                   | SW/ISSPROT                    | RHODOPSIN  |
| 10242                  | 23277                 | 36871             | 1.45                 | 5.4E+00                                       | Q17084                   | SW/ISSPROT                    | RHODOPSIN  |
| 4908                   | 18038                 | 31024             | 1.47                 | 5.3E+00                                       | L43126.1                 | NT                            | Bovine immunodeficiency-like virus surface envelope gene, 5' end of cds                            |
| 6617                   | 19777                 |                   | 0.7                  | 5.3E+00                                       | P41779                   | SW/ISSPROT                    | HOMEOBOX PROTEIN CBH-20  |
| 8270                   | 21952                 |                   | 3.39                 | 5.3E+00                                       | P54098                   | SW/ISSPROT                    | DNA POLYMERASE GAMMA (MITOCHONDRIAL DNA POLYMERASE CATALYTIC SUBUNIT)                              |
| 9184                   | 22282                 |                   | 0.72                 | 5.3E+00                                       | AB034980.1               | NT                            | Homo sapiens HERPUD1 gene for stress protein Herp, complete cds                                    |
| 11828                  | 24814                 | 38816             | 1.51                 | 5.3E+00                                       | Q27905                   | SW/ISSPROT                    | PROBABLE ANTIBACTERIAL PEPTIDE POLYPEPTIDE PRECURSOR   |
| 5590                   | 18775                 |                   | 1.18                 | 5.2E+00                                       | BE184840.1               | EST_HUMAN                     | QV4-HT0891-270400-186-009 HT0891 Homo sapiens cDNA   |
| 10583                  | 23618                 |                   | 0.98                 | 5.2E+00                                       | AF248070.1               | NT                            | Drosophila orientacea R1B retrotransposible element reverse transcriptase gene, partial cds        |
| 11470                  | 24629                 |                   | 1.93                 | 5.2E+00                                       | Q10136                   | SW/ISSPROT                    | HYPOTHETICAL 81.1 KD PROTEIN C23E2.03C IN CHROMOSOME 1   |
| 9182                   | 22240                 | 35784             | 0.94                 | 5.1E+00                                       | Q16905                   | SW/ISSPROT                    | RHODOPSIN  |
| 10030                  | 23068                 | 36587             | 1.33                 | 5.1E+00                                       | P08182                   | SW/ISSPROT                    | COLICIN N IMMUNITY PROTEIN (MICROCIN N IMMUNITY PROTEIN)   |
| 6415                   | 19584                 | 32946             | 0.74                 | 5.0E+00                                       | BF310443.1               | EST_HUMAN                     | 601894910F1 NIH_MGC_19 Homo sapiens cDNA clone IMAGE:4124114 5'                                    |
| 10397                  | 23432                 |                   | 0.7                  | 5.0E+00                                       | BF308561.1               | EST_HUMAN                     | 601890420F1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:4131509 5'                                    |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 10645                  | 23678                 | 37288             | 2.89                 | 5.0E+00                                       | AF162445.2               | NT                            | Canis familiaris skeletal muscle chloride channel ClC-1 (CLCN1) mRNA, complete cds  |
| 11569                  | 24624                 | 38304             | 7.24                 | 5.0E+00                                       | Z83890.1                 | NT                            | Mycobacterium tuberculosis H37Rv complete genome; segment 103/162   |
| 10437                  | 23472                 |                   | 0.70                 | 4.9E+00                                       | U91328.1                 | NT                            | Human hereditary haemochromatosis region, histone 2A-like protein gene, hereditary haemochromatosis (HLA-H) gene, RefSeq gene, and sodium phosphate transporter (NPT3) gene, complete cds |
| 4172                   | 17322                 |                   | 12.39                | 4.8E+00                                       | AF185253.1               | NT                            | Eunice australis histone H3 (H3) gene, partial cds  |
| 8348                   | 21429                 | 34953             | 0.6                  | 4.8E+00                                       | BF367809.1               | EST_HUMAN                     | RC3-GN0042-100800-011-c10 GN0042 Homo sapiens cDNA  |
| 8738                   | 21817                 |                   | 4.92                 | 4.8E+00                                       | AW750067.1               | EST_HUMAN                     | PMO-BT0547-310100-002-504 BT0547 Homo sapiens cDNA  |
| 300                    | 13517                 | 28550             | 3.04                 | 4.7E+00                                       | BF240652.1               | EST_HUMAN                     | 601875884F1 NIH_MGC_55 Homo sapiens cDNA clone IMAGE:4088718 5'   |
| 301                    | 13517                 | 28550             | 1.85                 | 4.7E+00                                       | BF240652.1               | EST_HUMAN                     | 601875884F1 NIH_MGC_55 Homo sapiens cDNA clone IMAGE:4088718 5'   |
| 3347                   | 16520                 | 28534             | 1.02                 | 4.7E+00                                       | AL103280.2               | NT                            | Homo sapiens chromosome 21 segment HS21C080   |
| 7982                   | 21012                 | 34522             | 0.69                 | 4.6E+00                                       | U97698.1                 | NT                            | Methanococcus jannaschii section 111 of 150 of the complete genome  |
| 9397                   | 22471                 | 36036             | 1.1                  | 4.6E+00                                       | BE846437.1               | EST_HUMAN                     | 7e88g10.x1 NCI_CGAP_G11.1 Homo sapiens cDNA clone IMAGE:3202098 3' similar to TR-O75140 O75140 KIAA0845 PROTEIN; contains element PTR5 repetitive element                                 |
| 9397                   | 22471                 | 36037             | 1.1                  | 4.6E+00                                       | BE846437.1               | EST_HUMAN                     | 7e88g10.x1 NCI_CGAP_G11.1 Homo sapiens cDNA clone IMAGE:3202098 3' similar to TR-O75140 O75140 KIAA0845 PROTEIN; contains element PTR5 repetitive element                                 |
| 10600                  | 23635                 |                   | 0.63                 | 4.6E+00                                       | AF240788.1               | NT                            | Homo sapiens glutathione S-transferase theta 2 (GSTT2) and glutathione S-transferase theta 1 (GSTT1) genes, complete cds  |
| 7947                   | 20997                 |                   | 0.7                  | 4.5E+00                                       | AF126177.1               | NT                            | Issachantia orientalis inositolphosphatidylceramide synthase (IPC1) gene, complete cds  |
| 11904                  | 24892                 | 38593             | 1.87                 | 4.5E+00                                       | AE001044.1               | NT                            | Archaeoglobus fulgidus section 63 of 172 of the complete genome   |
| 12058                  | 25039                 | 38747             | 1.53                 | 4.5E+00                                       | BF688841.1               | EST_HUMAN                     | 602123238F1 NIH_MGC_56 Homo sapiens cDNA clone IMAGE:4280218 5'   |
| 3105                   | 16281                 | 28296             | 0.84                 | 4.4E+00                                       | BF530853.1               | EST_HUMAN                     | 602072595F1 NCI_CGAP_Bim67 Homo sapiens cDNA clone IMAGE:4216284 5'   |
| 3105                   | 16281                 | 28297             | 0.84                 | 4.4E+00                                       | BF530853.1               | EST_HUMAN                     | 602072595F1 NCI_CGAP_Bim67 Homo sapiens cDNA clone IMAGE:4216284 5'   |
| 6331                   | 19502                 |                   | 1.58                 | 4.4E+00                                       | X13414.1                 | NT                            | Murine I gene for MHC class II(a) associated invariant chain  |
| 6245                   | 19419                 |                   | 0.77                 | 4.3E+00                                       | AF068679.1               | NT                            | Homo sapiens neutrophil collagenase (CLGNA) gene, promoter region and 5'UTR   |
| 7598                   | 20688                 | 34142             | 2.53                 | 4.3E+00                                       | Y13402.1                 | NT                            | Plasmodium falciparum R238-var1 gene, exon 1  |
| 7792                   | 20648                 | 34341             | 0.98                 | 4.3E+00                                       | AE001222.1               | NT                            | Treponema pallidum section 38 of 87 of the complete genome  |
| 11101                  | 24174                 | 37809             | 14.74                | 4.3E+00                                       | AF240783.1               | NT                            | Homo sapiens glutathione S-transferase theta 2 (GSTT2) and glutathione S-transferase theta 1 (GSTT1) genes, complete cds  |
| 5094                   | 18828                 |                   | 4.1                  | 4.2E+00                                       | P16444                   | SWISSPROT                     | MICROSOMAL DIPEPTIDASE PRECURSOR (MDP) (DEHYDROPEPTIDASE-I) (RENAL DIPEPTIDASE) (RDP)   |
| 5711                   | 18904                 | 32189             | 1.07                 | 4.2E+00                                       | P61826                   | SWISSPROT                     | LAF-4 PROTEIN (LYMPHOID NUCLEAR PROTEIN)  |
| 5880                   | 19070                 |                   | 0.71                 | 4.2E+00                                       | O27830                   | SWISSPROT                     | PUTATIVE ATP-DEPENDENT HELICASE MTH1802   |
| 6911                   | 20228                 | 33657             | 1.97                 | 4.2E+00                                       | P13983                   | SWISSPROT                     | EXTENSIN PRECURSOR (CELL WALL HYDROXYPROLINE-RICH GLYCOPROTEIN)   |

Page 7 of 550

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 6811                   | 20228                 | 33656             | 1.67                 | 4.2E+00                                       | P13983                   | SWISSPROT                     | EXTENSIN PRECURSOR (CELL WALL HYDROXYPROLINE-RICH GLYCOPROTEIN)  |
| 9160                   | 22238                 | 35783             | 5.3                  | 4.2E+00                                       | A809013.1                | EST_HUMAN                     | wf67(g93.x1 Source_NFL_T_GBC_S4 Homo sapiens cDNA clone IMAGE:2360682 3'   |
| 10122                  | 23160                 | 38756             | 1.03                 | 4.2E+00                                       | P31368                   | SWISSPROT                     | NUBIN PROTEIN (TWIN PROTEIN) (POU DOMAIN PROTEIN 1) (PDM-1) (DPOU-18) (DOCT1)  |
| 10352                  | 23387                 |                   | 0.47                 | 4.2E+00                                       | P40888                   | SWISSPROT                     | HEXOSE TRANSPORTER HXT8  |
| 7261                   | 20344                 | 33786             | 0.98                 | 4.1E+00                                       | BE263668.1               | EST_HUMAN                     | 601110727F1 NIH_MGC_16 Homo sapiens cDNA clone IMAGE:3351634 5'  |
| 7839                   | 20804                 | 34396             | 7.66                 | 4.1E+00                                       | O23810                   | SWISSPROT                     | YY1 PROTEIN PRECURSOR  |
| 7960                   | 21010                 |                   | 0.64                 | 4.1E+00                                       | AB041623.1               | NT                            | Pan troponin yessocensis mRNA for calcineurin A, complete cds  |
| 7963                   | 21013                 | 34523             | 3.8                  | 4.1E+00                                       | P28964                   | SWISSPROT                     | GENE 68 PROTEIN  |
| 7963                   | 21013                 | 34524             | 3.8                  | 4.1E+00                                       | P28964                   | SWISSPROT                     | GENE 68 PROTEIN  |
| 8101                   | 21183                 | 34703             | 2.88                 | 4.1E+00                                       | U57503.1                 | NT                            | Pan troponin yessocensis novel repetitive solo LTR element in the RNJ12 locus  |
| 9740                   | 22805                 | 36381             | 0.61                 | 4.1E+00                                       | P11253                   | SWISSPROT                     | 50S RIBOSOMAL PROTEIN L4   |
| 9873                   | 22913                 | 36498             | 2.25                 | 4.1E+00                                       | BF692425.1               | EST_HUMAN                     | 602247839F1 NIH_MGC_62 Homo sapiens cDNA clone IMAGE:339208 5'   |
| 10370                  | 23406                 |                   | 0.55                 | 4.1E+00                                       | AL235273.1               | NT                            | Rickettsia prowazekii strain Madrid E, complete genome; segment 444  |
| 10514                  | 23549                 |                   | 0.52                 | 4.1E+00                                       | P46414                   | SWISSPROT                     | CYCLIN-DEPENDENT KINASE INHIBITOR 1B (CYCLIN-DEPENDENT KINASE INHIBITOR P27)   |
| 11124                  | 24186                 |                   | 2.15                 | 4.1E+00                                       | P08718                   | SWISSPROT                     | (P27KIP1)  |
| 11214                  | 24283                 |                   | 12.26                | 4.1E+00                                       | BE885880.1               | EST_HUMAN                     | HYPOTHETICAL PROTEIN HMLF1   |
| 3635                   | 16789                 |                   | 0.72                 | 4.0E+00                                       | P38229                   | SWISSPROT                     | 601507510F1 NIH_MGC_71 Homo sapiens cDNA clone IMAGE:3909031 5'  |
| 5575                   | 20130                 | 33546             | 0.93                 | 4.0E+00                                       | O62863                   | SWISSPROT                     | GLC7-INTERACTING PROTEIN 1   |
| 5575                   | 20130                 | 33547             | 0.93                 | 4.0E+00                                       | O62863                   | SWISSPROT                     | SUCRASE-ISOMALTASE, INTESTINAL [CONTAINS: SUCRASE; ISOMALTASE]   |
| 7077                   | 20130                 | 33546             | 0.98                 | 4.0E+00                                       | O62863                   | SWISSPROT                     | SUCRASE-ISOMALTASE, INTESTINAL [CONTAINS: SUCRASE; ISOMALTASE]   |
| 7077                   | 20130                 | 33547             | 0.99                 | 4.0E+00                                       | O62863                   | SWISSPROT                     | SUCRASE-ISOMALTASE, INTESTINAL [CONTAINS: SUCRASE; ISOMALTASE]   |
| 7359                   | 20419                 | 33881             | 1                    | 4.0E+00                                       | O33010                   | SWISSPROT                     | CELL DIVISION PROTEIN FTSY HOMOLOG   |
| 9074                   | 22153                 | 36697             | 0.49                 | 4.0E+00                                       | Q14167                   | SWISSPROT                     | HYPOTHETICAL PROTEIN KIAA0144  |
| 10148                  | 23186                 | 36783             | 0.65                 | 4.0E+00                                       | O61309                   | SWISSPROT                     | NITRIC-OXIDE SYNTHASE (NOS, TYPE I) (NEURONAL NOS) (N-NOS) (NNOS)  |
| 10368                  | 23403                 | 37014             | 0.6                  | 4.0E+00                                       | AE002132.1               | NT                            | Ureaplasma urealyticum section 33 of 59 of the complete genome   |
| 10484                  | 23489                 | 37111             | 0.45                 | 4.0E+00                                       | Q00511                   | SWISSPROT                     | URICASE (URATE OXIDASE)  |
| 10484                  | 23489                 | 37112             | 0.45                 | 4.0E+00                                       | Q00511                   | SWISSPROT                     | URICASE (URATE OXIDASE)  |
| 11762                  | 23948                 | 37577             | 1.69                 | 4.0E+00                                       | P14546                   | SWISSPROT                     | CYTOCHROME C OXIDASE POLYPEPTIDE III   |
| 11843                  | 24832                 | 38524             | 2.98                 | 4.0E+00                                       | P07664                   | SWISSPROT                     | GENOME POLYPROTEIN [CONTAINS: CAPSID PROTEIN C (CORE PROTEIN); MATRIX PROTEIN (ENVELOPE GLYCOPROTEIN M); MAJOR ENVELOPE PROTEIN E; NONSTRUCTURAL PROTEINS NS1, NS2A, NS2B, NS2C, NS2D, NS2E, NS2F, NS2G, NS2H, NS2I, NS2J, NS2K, NS2L, NS2M, NS2N, NS2O, NS2P, NS2Q, NS2R, NS2S, NS2T, NS2U, NS2V, NS2W, NS2X, NS2Y, NS2Z, NS3, NS3A, NS3B, NS3C, NS3D, NS3E, NS3F, NS3G, NS3H, NS3I, NS3J, NS3K, NS3L, NS3M, NS3N, NS3O, NS3P, NS3Q, NS3R, NS3S, NS3T, NS3U, NS3V, NS3W, NS3X, NS3Y, NS3Z, NS4, NS4A, NS4B, NS4C, NS4D, NS4E, NS4F, NS4G, NS4H, NS4I, NS4J, NS4K, NS4L, NS4M, NS4N, NS4O, NS4P, NS4Q, NS4R, NS4S, NS4T, NS4U, NS4V, NS4W, NS4X, NS4Y, NS4Z, NS5, NS5A, NS5B, NS5C, NS5D, NS5E, NS5F, NS5G, NS5H, NS5I, NS5J, NS5K, NS5L, NS5M, NS5N, NS5O, NS5P, NS5Q, NS5R, NS5S, NS5T, NS5U, NS5V, NS5W, NS5X, NS5Y, NS5Z, NS6, NS6A, NS6B, NS6C, NS6D, NS6E, NS6F, NS6G, NS6H, NS6I, NS6J, NS6K, NS6L, NS6M, NS6N, NS6O, NS6P, NS6Q, NS6R, NS6S, NS6T, NS6U, NS6V, NS6W, NS6X, NS6Y, NS6Z, NS7, NS7A, NS7B, NS7C, NS7D, NS7E, NS7F, NS7G, NS7H, NS7I, NS7J, NS7K, NS7L, NS7M, NS7N, NS7O, NS7P, NS7Q, NS7R, NS7S, NS7T, NS7U, NS7V, NS7W, NS7X, NS7Y, NS7Z, NS8, NS8A, NS8B, NS8C, NS8D, NS8E, NS8F, NS8G, NS8H, NS8I, NS8J, NS8K, NS8L, NS8M, NS8N, NS8O, NS8P, NS8Q, NS8R, NS8S, NS8T, NS8U, NS8V, NS8W, NS8X, NS8Y, NS8Z, NS9, NS9A, NS9B, NS9C, NS9D, NS9E, NS9F, NS9G, NS9H, NS9I, NS9J, NS9K, NS9L, NS9M, NS9N, NS9O, NS9P, NS9Q, NS9R, NS9S, NS9T, NS9U, NS9V, NS9W, NS9X, NS9Y, NS9Z, NS10, NS10A, NS10B, NS10C, NS10D, NS10E, NS10F, NS10G, NS10H, NS10I, NS10J, NS10K, NS10L, NS10M, NS10N, NS10O, NS10P, NS10Q, NS10R, NS10S, NS10T, NS10U, NS10V, NS10W, NS10X, NS10Y, NS10Z, NS11, NS11A, NS11B, NS11C, NS11D, NS11E, NS11F, NS11G, NS11H, NS11I, NS11J, NS11K, NS11L, NS11M, NS11N, NS11O, NS11P, NS11Q, NS11R, NS11S, NS11T, NS11U, NS11V, NS11W, NS11X, NS11Y, NS11Z, NS12, NS12A, NS12B, NS12C, NS12D, NS12E, NS12F, NS12G, NS12H, NS12I, NS12J, NS12K, NS12L, NS12M, NS12N, NS12O, NS12P, NS12Q, NS12R, NS12S, NS12T, NS12U, NS12V, NS12W, NS12X, NS12Y, NS12Z, NS13, NS13A, NS13B, NS13C, NS13D, NS13E, NS13F, NS13G, NS13H, NS13I, NS13J, NS13K, NS13L, NS13M, NS13N, NS13O, NS13P, NS13Q, NS13R, NS13S, NS13T, NS13U, NS13V, NS13W, NS13X, NS13Y, NS13Z, NS14, NS14A, NS14B, NS14C, NS14D, NS14E, NS14F, NS14G, NS14H, NS14I, NS14J, NS14K, NS14L, NS14M, NS14N, NS14O, NS14P, NS14Q, NS14R, NS14S, NS14T, NS14U, NS14V, NS14W, NS14X, NS14Y, NS14Z, NS15, NS15A, NS15B, NS15C, NS15D, NS15E, NS15F, NS15G, NS15H, NS15I, NS15J, NS15K, NS15L, NS15M, NS15N, NS15O, NS15P, NS15Q, NS15R, NS15S, NS15T, NS15U, NS15V, NS15W, NS15X, NS15Y, NS15Z, NS16, NS16A, NS16B, NS16C, NS16D, NS16E, NS16F, NS16G, NS16H, NS16I, NS16J, NS16K, NS16L, NS16M, NS16N, NS16O, NS16P, NS16Q, NS16R, NS16S, NS16T, NS16U, NS16V, NS16W, NS16X, NS16Y, NS16Z, NS17, NS17A, NS17B, NS17C, NS17D, NS17E, NS17F, NS17G, NS17H, NS17I, NS17J, NS17K, NS17L, NS17M, NS17N, NS17O, NS17P, NS17Q, NS17R, NS17S, NS17T, NS17U, NS17V, NS17W, NS17X, NS17Y, NS17Z, NS18, NS18A, NS18B, NS18C, NS18D, NS18E, NS18F, NS18G, NS18H, NS18I, NS18J, NS18K, NS18L, NS18M, NS18N, NS18O, NS18P, NS18Q, NS18R, NS18S, NS18T, NS18U, NS18V, NS18W, NS18X, NS18Y, NS18Z, NS19, NS19A, NS19B, NS19C, NS19D, NS19E, NS19F, NS19G, NS19H, NS19I, NS19J, NS19K, NS19L, NS19M, NS19N, NS19O, NS19P, NS19Q, NS19R, NS19S, NS19T, NS19U, NS19V, NS19W, NS19X, NS19Y, NS19Z, NS20, NS20A, NS20B, NS20C, NS20D, NS20E, NS20F, NS20G, NS20H, NS20I, NS20J, NS20K, NS20L, NS20M, NS20N, NS20O, NS20P, NS20Q, NS20R, NS20S, NS20T, NS20U, NS20V, NS20W, NS20X, NS20Y, NS20Z, NS21, NS21A, NS21B, NS21C, NS21D, NS21E, NS21F, NS21G, NS21H, NS21I, NS21J, NS21K, NS21L, NS21M, NS21N, NS21O, NS21P, NS21Q, NS21R, NS21S, NS21T, NS21U, NS21V, NS21W, NS21X, NS21Y, NS21Z, NS22, NS22A, NS22B, NS22C, NS22D, NS22E, NS22F, NS22G, NS22H, NS22I, NS22J, NS22K, NS22L, NS22M, NS22N, NS22O, NS22P, NS22Q, NS22R, NS22S, NS22T, NS22U, NS22V, NS22W, NS22X, NS22Y, NS22Z, NS23, NS23A, NS23B, NS23C, NS23D, NS23E, NS23F, NS23G, NS23H, NS23I, NS23J, NS23K, NS23L, NS23M, NS23N, NS23O, NS23P, NS23Q, NS23R, NS23S, NS23T, NS23U, NS23V, NS23W, NS23X, NS23Y, NS23Z, NS24, NS24A, NS24B, NS24C, NS24D, NS24E, NS24F, NS24G, NS24H, NS24I, NS24J, NS24K, NS24L, NS24M, NS24N, NS24O, NS24P, NS24Q, NS24R, NS24S, NS24T, NS24U, NS24V, NS24W, NS24X, NS24Y, NS24Z, NS25, NS25A, NS25B, NS25C, NS25D, NS25E, NS25F, NS25G, NS25H, NS25I, NS25J, NS25K, NS25L, NS25M, NS25N, NS25O, NS25P, NS25Q, NS25R, NS25S, NS25T, NS25U, NS25V, NS25W, NS25X, NS25Y, NS25Z, NS26, NS26A, NS26B, NS26C, NS26D, NS26E, NS26F, NS26G, NS26H, NS26I, NS26J, NS26K, NS26L, NS26M, NS26N, NS26O, NS26P, NS26Q, NS26R, NS26S, NS26T, NS26U, NS26V, NS26W, NS26X, NS26Y, NS26Z, NS27, NS27A, NS27B, NS27C, NS27D, NS27E, NS27F, NS27G, NS27H, NS27I, NS27J, NS27K, NS27L, NS27M, NS27N, NS27O, NS27P, NS27Q, NS27R, NS27S, NS27T, NS27U, NS27V, NS27W, NS27X, NS27Y, NS27Z, NS28, NS28A, NS28B, NS28C, NS28D, NS28E, NS28F, NS28G, NS28H, NS28I, NS28J, NS28K, NS28L, NS28M, NS28N, NS28O, NS28P, NS28Q, NS28R, NS28S, NS28T, NS28U, NS28V, NS28W, NS28X, NS28Y, NS28Z, NS29, NS29A, NS29B, NS29C, NS29D, NS29E, NS29F, NS29G, NS29H, NS29I, NS29J, NS29K, NS29L, NS29M, NS29N, NS29O, NS29P, NS29Q, NS29R, NS29S, NS29T, NS29U, NS29V, NS29W, NS29X, NS29Y, NS29Z, NS30, NS30A, NS30B, NS30C, NS30D, NS30E, NS30F, NS30G, NS30H, NS30I, NS30J, NS30K, NS30L, NS30M, NS30N, NS30O, NS30P, NS30Q, NS30R, NS30S, NS30T, NS30U, NS30V, NS30W, NS30X, NS30Y, NS30Z, NS31, NS31A, NS31B, NS31C, NS31D, NS31E, NS31F, NS31G, NS31H, NS31I, NS31J, NS31K, NS31L, NS31M, NS31N, NS31O, NS31P, NS31Q, NS31R, NS31S, NS31T, NS31U, NS31V, NS31W, NS31X, NS31Y, NS31Z, NS32, NS32A, NS32B, NS32C, NS32D, NS32E, NS32F, NS32G, NS32H, NS32I, NS32J, NS32K, NS32L, NS32M, NS32N, NS32O, NS32P, NS32Q, NS32R, NS32S, NS32T, NS32U, NS32V, NS32W, NS32X, NS32Y, NS32Z, NS33, NS33A, NS33B, NS33C, NS33D, NS33E, NS33F, NS33G, NS33H, NS33I, NS33J, NS33K, NS33L, NS33M, NS33N, NS33O, NS33P, NS33Q, NS33R, NS33S, NS33T, NS33U, NS33V, NS33W, NS33X, NS33Y, NS33Z, NS34, NS34A, NS34B, NS34C, NS34D, NS34E, NS34F, NS34G, NS34H, NS34I, NS34J, NS34K, NS34L, NS34M, NS34N, NS34O, NS34P, NS34Q, NS34R, NS34S, NS34T, NS34U, NS34V, NS34W, NS34X, NS34Y, NS34Z, NS35, NS35A, NS35B, NS35C, NS35D, NS35E, NS35F, NS35G, NS35H, NS35I, NS35J, NS35K, NS35L, NS35M, NS35N, NS35O, NS35P, NS35Q, NS35R, NS35S, NS35T, NS35U, NS35V, NS35W, NS35X, NS35Y, NS35Z, NS36, NS36A, NS36B, NS36C, NS36D, NS36E, NS36F, NS36G, NS36H, NS36I, NS36J, NS36K, NS36L, NS36M, NS36N, NS36O, NS36P, NS36Q, NS36R, NS36S, NS36T, NS36U, NS36V, NS36W, NS36X, NS36Y, NS36Z, NS37, NS37A, NS37B, NS37C, NS37D, NS37E, NS37F, NS37G, NS37H, NS37I, NS37J, NS37K, NS37L, NS37M, NS37N, NS37O, NS37P, NS37Q, NS37R, NS37S, NS37T, NS37U, NS37V, NS37W, NS37X, NS37Y, NS37Z, NS38, NS38A, NS38B, NS38C, NS38D, NS38E, NS38F, NS38G, NS38H, NS38I, NS38J, NS38K, NS38L, NS38M, NS38N, NS38O, NS38P, NS38Q, NS38R, NS38S, NS38T, NS38U, NS38V, NS38W, NS38X, NS38Y, NS38Z, NS39, NS39A, NS39B, NS39C, NS39D, NS39E, NS39F, NS39G, NS39H, NS39I, NS39J, NS39K, NS39L, NS39M, NS39N, NS39O, NS39P, NS39Q, NS39R, NS39S, NS39T, NS39U, NS39V, NS39W, NS39X, NS39Y, NS39Z, NS40, NS40A, NS40B, NS40C, NS40D, NS40E, NS40F, NS40G, NS40H, NS40I, NS40J, NS40K, NS40L, NS40M, NS40N, NS40O, NS40P, NS40Q, NS40R, NS40S, NS40T, NS40U, NS40V, NS40W, NS40X, NS40Y, NS40Z, NS41, NS41A, NS41B, NS41C, NS41D, NS41E, NS41F, NS41G, NS41H, NS41I, NS41J, NS41K, NS41L, NS41M, NS41N, NS41O, NS41P, NS41Q, NS41R, NS41S, NS41T, NS41U, NS41V, NS41W, NS41X, NS41Y, NS41Z, NS42, NS42A, NS42B, NS42C, NS42D, NS42E, NS42F, NS42G, NS42H, NS42I, NS42J, NS42K, NS42L, NS42M, NS42N, NS42O, NS42P, NS42Q, NS42R, NS42S, NS42T, NS42U, NS42V, NS42W, NS42X, NS42Y, NS42Z, NS43, NS43A, NS43B, NS43C, NS43D, NS43E, NS43F, NS43G, NS43H, NS43I, NS43J, NS43K, NS43L, NS43M, NS43N, NS43O, NS43P, NS43Q, NS43R, NS43S, NS43T, NS43U, NS43V, NS43W, NS43X, NS43Y, NS43Z, NS44, NS44A, NS44B, NS44C, NS44D, NS44E, NS44F, NS44G, NS44H, NS44I, NS44J, NS44K, NS44L, NS44M, NS44N, NS44O, NS44P, NS44Q, NS44R, NS44S, NS44T, NS44U, NS44V, NS44W, NS44X, NS44Y, NS44Z, NS45, NS45A, NS45B, NS45C, NS45D, NS45E, NS45F, NS45G, NS45H, NS45I, NS45J, NS45K, NS45L, NS45M, NS45N, NS45O, NS45P, NS45Q, NS45R, NS45S, NS45T, NS45U, NS45V, NS45W, NS45X, NS45Y, NS45Z, NS46, NS46A, NS46B, NS46C, NS46D, NS46E, NS46F, NS46G, NS46H, NS46I, NS46J, NS46K, NS46L, NS46M, NS46N, NS46O, NS46P, NS46Q, NS46R, NS46S, NS46T, NS46U, NS46V, NS46W, NS46X, NS46Y, NS46Z, NS47, NS47A, NS47B, NS47C, NS47D, NS47E, NS47F, NS47G, NS47H, NS47I, NS47J, NS47K, NS47L, NS47M, NS47N, NS47O, NS47P, NS47Q, NS47R, NS47S, NS47T, NS47U, NS47V, NS47W, NS47X, NS47Y, NS47Z, NS48, NS48A, NS48B, NS48C, NS48D, NS48E, NS48F, NS48G, NS48H, NS48I, NS48J, NS48K, NS48L, NS48M, NS48N, NS48O, NS48P, NS48Q, NS48R, NS48S, NS48T, NS48U, NS48V, NS48W, NS48X, NS48Y, NS48Z, NS49, NS49A, NS49B, NS49C, NS49D, NS49E, NS49F, NS49G, NS49H, NS49I, NS49J, NS49K, NS49L, NS49M, NS49N, NS49O, NS49P, NS49Q, NS49R, NS49S, NS49T, NS49U, NS49V, NS49W, NS49X, NS49Y, NS49Z, NS50, NS50A, NS50B, NS50C, NS50D, NS50E, NS50F, NS50G, NS50H, NS50I, NS50J, NS50K, NS50L, NS50M, NS50N, NS50O, NS50P, NS50Q, NS50R, NS50S, NS50T, NS50U, NS50V, NS50W, NS50X, NS50Y, NS50Z, NS51, NS51A, NS51B, NS51C, NS51D, NS51E, NS51F, NS51G, NS51H, NS51I, NS51J, NS51K, NS51L, NS51M, NS51N, NS51O, NS51P, NS51Q, NS51R, NS51S, NS51T, NS51U, NS51V, NS51W, NS51X, NS51Y, NS51Z, NS52, NS52A, NS52B, NS52C, NS52D, NS52E, NS52F, NS52G, NS52H, NS52I, NS52J, NS52K, NS52L, NS52M, NS52N, NS52O, NS52P, NS52Q, NS52R, NS52S, NS52T, NS52U, NS52V, NS52W, NS52X, NS52Y, NS52Z, NS53, NS53A, NS53B, NS53C, NS53D, NS53E, NS53F, NS53G, NS53H, NS53I, NS53J, NS53K, NS53L, NS53M, NS53N, NS53O, NS53P, NS53Q, NS53R, NS53S, NS53T, NS53U, NS53V, NS53W, NS53X, NS53Y, NS53Z, NS54, NS54A, NS54B, NS54C, NS54D, NS54E, NS54F, NS54G, NS54H, NS54I, NS54J, NS54K, NS54L, NS54M, NS54N, NS54O, NS54P, NS54Q, NS54R, NS54S, NS54T, NS54U, NS54V, NS54W, NS54X, NS54Y, NS54Z, NS55, NS55A, NS55B, NS55C, NS55D, NS55E, NS55F, NS55G, NS55H, NS55I, NS55J, NS55K, NS55L, NS55M, NS55N, NS55O, NS55P, NS55Q, NS55R, NS55S, NS55T, NS55U, NS55V, NS55W, NS55X, NS55Y, NS55Z, NS56, NS56A, NS56B, NS56C, NS56D, NS56E, NS56F, NS56G, NS56H, NS56I, NS56J, NS56K, NS56L, NS56M, NS56N, NS56O, NS56P, NS56Q, NS56R, NS56S, NS56T, NS56U, NS56V, NS56W, NS56X, NS56Y, NS56Z, NS57, NS57A, NS57B, NS57C, NS57D, NS57E, NS57F, NS57G, NS57H, NS57I, NS57J, NS57K, NS57L, NS57M, NS57N, NS57O, NS57P, NS57Q, NS57R, NS57S, NS57T, NS57U, NS57V, NS57W, NS57X, NS57Y, NS57Z, NS58, NS58A, NS58B, NS58C, NS58D, NS58E, NS58F, NS58G, NS58H, NS58I, NS58J, NS58K, NS58L, NS58M, NS58N, NS58O, NS58P, NS58Q, NS58R, NS58S, NS58T, NS58U, NS58V, NS58W, NS58X, NS58Y, NS58Z, NS59, NS59A, NS59B, NS59C, NS59D, NS59E, NS59F, NS59G, NS59H, NS59I, NS59J, NS59K, NS59L, NS59M, NS59N, NS59O, NS59P, NS59Q, NS59R, NS59S, NS59T, NS59U, NS59V, NS59W, NS59X, NS59Y, NS59Z, NS60, NS60A, NS60B, NS60C, NS60D, NS60E, NS60F, NS60G, NS60H, NS60I, NS60J, NS60K, NS60L, NS60M, NS60N, NS60O, NS60P, NS60Q, NS60R, NS60S, NS60T, NS60U, NS60V, NS60W, NS60X, NS60Y, NS60Z, NS61, NS61A, NS61B, NS61C, NS61D, NS61E, NS61F, NS61G, NS61H, NS61I, NS61J, NS61K, NS61L, NS61M, NS61N, NS61O, NS61P, NS61Q, NS61R, NS61S, NS61T, NS61U, NS61V, NS61W, NS61X, NS61Y, NS61Z, NS62, NS62A, NS62B, NS62C, NS62D, NS62E, NS62F, NS62G, NS62H, NS62I, NS62J, NS62K, NS62L, NS62M, NS62N, NS62O, NS62P, NS62Q, NS62R, NS62S, NS62T, NS62U, NS62V, NS62W, NS62X, NS62Y, NS62Z, NS63, NS63A, NS63B, NS63C, NS63D, NS63E, NS63F, NS63G, NS63H, NS63I, NS63J, NS63K, NS63L, NS63M, NS63N, NS63O, NS63P, NS63Q, NS63R, NS63S, NS63T, NS63U, NS63V, NS63W, NS63X, NS63Y, NS63Z, NS64, NS64A, NS64B, NS64C, NS64D, NS64E, NS64F, NS64G, NS64H, NS64I, NS64J, NS64K, NS64L, NS64M, NS64N, NS64O, NS64P, NS64Q, NS64R, NS64S, NS64T, NS64U, NS64V, NS64W, NS64X, NS64Y, NS64Z, NS65, NS65A, NS65B, NS65C, NS65D, NS65E, NS65F, NS65G, NS65H, NS65I, NS65J, NS65K, NS65L, NS65M, NS65N, NS65O, NS65P, NS65Q, NS65R, NS65S, NS65T, NS65U, NS65V, NS65W, NS65X, NS65Y, NS65Z, NS66, NS66A, NS66B, NS66C, NS66D, NS66E, NS66F, NS66G, NS66H, NS66I, NS66J, NS66K, NS66L, NS66M, NS66N, NS66O, NS66P, NS66Q, NS66R, NS66S, NS66T, NS66U, NS66V, NS66W, NS66X, NS66Y, NS66Z, NS67, NS67A, NS67B, NS67C, NS67D, NS67E, NS67F, NS67G, NS67H, NS67I, NS67J, NS67K, NS67L, NS67M, NS67N, NS67O, NS67P, NS67Q, NS67R, NS67S, NS67T, NS67U, NS67V, NS67W, NS67X, NS67Y, NS67Z, NS68, NS68A, NS68B, NS68C, NS68D, NS68E, NS68F, NS68G, NS68H, NS68I, NS68J, NS68K, NS68L, NS68M, NS68N, NS68O, NS68P, NS68Q, NS68R, NS68S, NS68T, NS68U, NS68V, NS68W, NS68X, NS68Y, NS68Z, NS69, NS69A, NS69B, NS69C, NS69D, NS69E, NS69F, NS69G, NS69H, NS69I, NS69J, NS69K, NS69L, NS69M, NS69N, NS69O, NS69P, NS69Q, NS69R, NS69S, NS69T, NS69U, NS69V, NS69W, NS69X, NS69Y, NS69Z, NS70, NS70A, NS70B, NS70C, NS70D, NS70E, NS70F, NS70G, NS70H, NS70I, NS70J, NS70K, NS70L, NS70M, NS70N, NS70O, NS70P, NS70Q, NS70R, NS70S, NS70T, NS70U, NS70V, NS70W, NS70X, NS70Y, NS70Z, NS71, NS71A, NS71B, NS71C, NS71D, NS71E, NS71F, NS71G, NS71H, NS71I, NS71J, NS71K, NS71L, NS71M, NS71N, NS71O, NS71P, NS71Q, NS71R, NS71S, NS71T, NS71U, NS71V, NS71W, NS71X, NS71Y, |

Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 11843                  | 24832                 | 38525             | 2.98                 | 4.0E+00                                       | P07584                   | SWISSPROT                     | GENOME POLYPROTEIN [CONTAINS: CAPSID PROTEIN C (CORE PROTEIN); MATRIX PROTEIN<br>(ENVELOPE GLYCOPROTEIN M); MAJOR ENVELOPE PROTEIN E; NONSTRUCTURAL PROTEINS<br>NS1, NS2A, NS2B, NS4A AND NS4B; HELICASE (NS3); RNA-DIRECTED RNA POLYMERASE (NS5)] |
| 12133                  | 25113                 | 38817             | 1.34                 | 4.0E+00                                       | P35611                   | SWISSPROT                     | ERYTHROCYTE ADDUCIN ALPHA SUBUNIT  |
| 3891                   | 16755                 | 28770             | 5                    | 3.9E+00                                       | X04518.1                 | NT                            | N. tabacum chitinase gene 50 for class I chitinase C   |
| 4441                   | 17681                 |                   | 0.87                 | 3.9E+00                                       | A055466.1                | NT                            | Mus musculus seminal vesicle secretory protein 99 (MSVSP99) gene, promoter region  |
| 5775                   | 18937                 | 32270             | 2.92                 | 3.9E+00                                       | BE814357.1               | EST_HUMAN                     | MR0-BN0070-300500-028-h05 BN0070 Homo sapiens cDNA   |
| 6776                   | 18967                 | 32271             | 2.92                 | 3.9E+00                                       | BE814357.1               | EST_HUMAN                     | MR0-BN0070-300500-028-h05 BN0070 Homo sapiens cDNA   |
| 6772                   | 19327                 | 33322             | 0.93                 | 3.9E+00                                       | AF298209.1               | NT                            | Dicystotidium discoidium non-LTR retrotransposon TRE5-B, polyprotein (gag) and group-specific antigen<br>(pol) genes, complete cds   |
| 6829                   | 19362                 | 33389             | 0.7                  | 3.9E+00                                       | U91328.1                 | NT                            | Human hereditary haemochromatosis region, histone 2A-like protein gene, hereditary haemochromatosis<br>(HLA-H) gene, RefSeq gene, and sodium phosphate transporter (NPT3) gene, complete cds   |
| 7013                   | 20149                 | 33570             | 4.43                 | 3.9E+00                                       | P39289                   | SWISSPROT                     | HYPOTHETICAL TRANSCRIPTIONAL REGULATOR IN AIDS-RPSF INTERGENIC REGION  |
| 7619                   | 20502                 | 34068             | 4.26                 | 3.9E+00                                       | M23907.1                 | NT                            | Human MHC class II lymphocyte antigen (DP- $\alpha$ -beta-1) gene, exon 2  |
| 8812                   | 21593                 | 35128             | 2.44                 | 3.9E+00                                       | X05885.1                 | NT                            | X.laotis mRNA for M4 muscarinic receptor   |
| 11674                  | 23602                 | 37624             | 2.77                 | 3.9E+00                                       | Y18000.1                 | NT                            | Homo sapiens NF2 gene  |
| 2693                   | 15813                 |                   | 1.53                 | 3.8E+00                                       | AE001562.1               | NT                            | Helicobacter pylori, strain J99 section 123 of 132 of the complete genome  |
| 6620                   | 19685                 | 33057             | 1.05                 | 3.8E+00                                       | Q57830                   | SWISSPROT                     | HYPOTHETICAL PROTEIN MJ0385  |
| 8627                   | 21707                 | 35244             | 1.12                 | 3.8E+00                                       | D44726.1                 | EST_HUMAN                     | HUMSUPY135 Human brain cDNA Homo sapiens cDNA clone 148  |
| 9909                   | 23037                 |                   | 0.6                  | 3.8E+00                                       | AJ390961.1               | NT                            | Streptococcus oralis partial xpt gene for xanthine phosphoribosyltransferase, strain NCTC7804  |
| 12120                  | 25100                 |                   | 11.66                | 3.8E+00                                       | 8631284                  | NT                            | Melanoplus sanguinipes entomopoxvirus, complete genome   |
| 4129                   | 17282                 | 30277             | 12.79                | 3.7E+00                                       | AL161539.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 39  |
| 7316                   | 20398                 |                   | 0.83                 | 3.7E+00                                       | AL445065.1               | NT                            | Thermoplasma acidophilum complete genome, segment 3/5  |
| 8878                   | 22454                 | 38017             | 1.04                 | 3.7E+00                                       | U43541.1                 | NT                            | Mus musculus laminin beta 2 gene, exons 17-33, and complete cds  |
| 11715                  | 24755                 | 39450             | 2.11                 | 3.7E+00                                       | BF688278.1               | EST_HUMAN                     | 602120551F1 NIH_MGC 59 Homo sapiens cDNA clone IMAGE:4277748 5'  |
| 11716                  | 24755                 | 39451             | 2.11                 | 3.7E+00                                       | BF688279.1               | EST_HUMAN                     | 602120551F1 NIH_MGC 59 Homo sapiens cDNA clone IMAGE:4277748 5'  |
| 12280                  | 25198                 |                   | 1.87                 | 3.7E+00                                       | AB013748.3               | NT                            | Gallus gallus mRNA for hypoxia-inducible factor-1 alpha, complete cds  |
| 609                    | 13795                 | 28814             | 3.76                 | 3.6E+00                                       | AV781055.1               | EST_HUMAN                     | AV781055 MDS Homo sapiens cDNA clone MDSBJE10 5'   |
| 6369                   | 18572                 | 31440             | 0.76                 | 3.6E+00                                       | BF316316.1               | EST_HUMAN                     | 601801866F1 NIH_MGC 19 Homo sapiens cDNA clone IMAGE:4191018 5'  |
| 8749                   | 21828                 | 35364             | 0.86                 | 3.6E+00                                       | D12367.1                 | EST_HUMAN                     | HUM000TB08 Liver HepG2 cell line. Homo sapiens cDNA clone tb08   |
| 8749                   | 21828                 | 35365             | 0.86                 | 3.6E+00                                       | D12367.1                 | EST_HUMAN                     | HUM000TB08 Liver HepG2 cell line. Homo sapiens cDNA clone tb08   |
| 8847                   | 21828                 | 35464             | 3.87                 | 3.6E+00                                       | AE004447.1               | NT                            | Pseudomonas aeruginosa PAO1, section 8 of 529 of the complete genome   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 8847                   | 21926                 | 35485             | 3.67                 | 3.6E+00                                       | AE004447.1               | NT                            | <i>Pseudomonas aeruginosa</i> PA01, section 8 of 529 of the complete genome   |
| 8864                   | 22904                 | 36488             | 0.51                 | 3.6E+00                                       | U72775.1                 | NT                            | <i>Ciconia episcopus</i> cytochrome b gene, mitochondrial gene encoding mitochondrial protein, partial cds  |
| 8864                   | 22904                 | 36489             | 0.51                 | 3.6E+00                                       | U72775.1                 | NT                            | <i>Ciconia episcopus</i> cytochrome b gene, mitochondrial gene encoding mitochondrial protein, partial cds  |
| 11063                  | 24167                 |                   | 3.21                 | 3.6E+00                                       | M60785.1                 | NT                            | <i>Escherichia coli</i> glyceraldehyde dehydrogenase (gldD) gene, partial cds; and the translation start site has been verified (gldE), the translation start site has been verified (gldG), and repressor protein (gldR) genes, complete cds |
| 3319                   | 16492                 | 28508             | 1.04                 | 3.5E+00                                       | AF221538.1               | NT                            | <i>Cryptosporidium felis</i> heat shock protein 70 (HSP70) gene, partial cds  |
| 6123                   | 18302                 |                   | 1                    | 3.6E+00                                       | L42888.1                 | NT                            | <i>Borrelia burgdorferi</i> (strain 26016) outer surface protein (ospC) gene, partial cds   |
| 6341                   | 19511                 | 32668             | 0.93                 | 3.5E+00                                       | R19745.1                 | EST_HUMAN                     | hg40cd8.1 Scanes Infant brain INIB Homo sapiens cDNA clone IMAGE:34940 5'   |
| 8681                   | 21761                 |                   | 0.58                 | 3.6E+00                                       | P24557                   | SWISSPROT                     | THROMBOXANE-A SYNTHASE (TXA SYNTHASE) (TXS)   |
| 9232                   | 22310                 | 35851             | 0.99                 | 3.5E+00                                       | AA190698.1               | EST_HUMAN                     | zp88b04.s1 Stratagene HeLa cell c3 937216 Homo sapiens cDNA clone IMAGE:627055 3' similar to contains Alu repetitive element; contains element MSR1 repetitive element;   |
| 9232                   | 22310                 | 35852             | 0.99                 | 3.5E+00                                       | AA190698.1               | EST_HUMAN                     | contains Alu repetitive element; contains element MSR1 repetitive element;  |
| 9894                   | 22743                 | 36313             | 1                    | 3.6E+00                                       | AL161563.2               | NT                            | <i>Arabidopsis thaliana</i> DNA chromosome 4, contig fragment No. 53  |
| 10739                  | 23772                 | 37383             | 0.58                 | 3.6E+00                                       | AJ133723.1               | NT                            | <i>Bos taurus</i> mRNA for Ran-binding protein 2, partial   |
| 1542                   | 14694                 | 27778             | 3.81                 | 3.4E+00                                       | AF254577.1               | NT                            | <i>Brassica napus</i> RPB5d mRNA, complete cds  |
| 2644                   | 16767                 | 28882             | 1.07                 | 3.4E+00                                       | AL163278.2               | NT                            | Homo sapiens chromosome 21 segment HS21C078   |
| 7518                   | 20591                 | 34065             | 2.33                 | 3.4E+00                                       | P04062                   | SWISSPROT                     | DNA-DIRECTED RNA POLYMERASE II LARGEST SUBUNIT  |
| 7860                   | 20832                 | 34437             | 0.76                 | 3.4E+00                                       | P04062                   | SWISSPROT                     | DNA-DIRECTED RNA POLYMERASE II LARGEST SUBUNIT  |
| 8876                   | 21955                 |                   | 0.77                 | 3.4E+00                                       | U65408.1                 | NT                            | Human alternatively spliced potassium channels ROM-K1, ROM-K2, ROM-K3, ROM-K4, ROM-K5, and ROM-K6 (KCNJ1) gene, complete cds  |
| 9274                   | 22350                 | 35901             | 0.77                 | 3.4E+00                                       | AJ229042.1               | NT                            | Homo sapiens 959 kb contig between AML1 and CBR1 on chromosome 21q22, segment 2/3   |
| 9312                   | 22398                 | 35939             | 0.54                 | 3.4E+00                                       | AJ250587.1               | NT                            | Homo sapiens partial TM4SF2 gene for tetraspanin protein, exon 8  |
| 10471                  | 23506                 | 37119             | 3.35                 | 3.4E+00                                       | AF013167.1               | NT                            | <i>Saccharomyces cerevisiae</i> MSS1 gene, complete cds   |
| 11822                  | 24811                 | 36508             | 2.06                 | 3.4E+00                                       | L77570.1                 | NT                            | Homo sapiens DiGeorge syndrome critical region, centromeric end   |
| 6193                   | 19369                 | 32719             | 0.97                 | 3.3E+00                                       | Q09669                   | SWISSPROT                     | POTATIVE IRON ALCOHOL DEHYDROGENASE   |
| 6193                   | 19369                 | 32720             | 0.97                 | 3.3E+00                                       | Q09669                   | SWISSPROT                     | POTATIVE IRON ALCOHOL DEHYDROGENASE   |
| 8077                   | 21169                 | 34678             | 1.03                 | 3.3E+00                                       | AF111168.2               | NT                            | Homo sapiens canine palmitoyl transferase, subunit II gene, complete cds; and unknown genes   |
| 10681                  | 23715                 | 37321             | 1.04                 | 3.3E+00                                       | AP001511.1               | NT                            | <i>Bacillus halodurans</i> genomic DNA, section 6/14  |
| 10681                  | 23715                 | 37322             | 1.04                 | 3.3E+00                                       | AP001511.1               | NT                            | <i>Bacillus halodurans</i> genomic DNA, section 5/14  |
| 513                    | 13707                 | 26735             | 1.79                 | 3.2E+00                                       | X69422.1                 | NT                            | D.rerio zp-50 POU gene  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 4198                   | 13707                 | 28735             | 0.78                 | 3.2E+00                                       | X88422.1                 | NT                            | D.refio zp-50 POU gene   |
| 4850                   | 17688                 | 30971             | 0.96                 | 3.2E+00                                       | 4602404                  | NT                            | Homo sapiens carcinoembryonic antigen-related cell adhesion molecule 1 (biliary glycoprotein) (CEACAM1),<br>mRNA   |
| 5085                   | 18880                 | 32170             | 1.16                 | 3.2E+00                                       | P54824                   | SWISSPROT                     | SQUALENE-HOPENE CYCLASE  |
| 5086                   | 18880                 | 32171             | 1.16                 | 3.2E+00                                       | P54824                   | SWISSPROT                     | SQUALENE-HOPENE CYCLASE  |
| 5719                   | 18812                 | 32207             | 2.49                 | 3.2E+00                                       | P12783                   | SWISSPROT                     | PHOSPHOGLYCERATE KINASE, CYTOSOLIC   |
| 5719                   | 18812                 | 32208             | 2.49                 | 3.2E+00                                       | P12783                   | SWISSPROT                     | PHOSPHOGLYCERATE KINASE, CYTOSOLIC   |
| 6436                   | 19303                 | 32968             | 1.91                 | 3.2E+00                                       | P18831                   | SWISSPROT                     | NADH-UBIQUINONE OXIDOREDUCTASE CHAIN 4   |
| 6436                   | 19303                 | 32967             | 1.91                 | 3.2E+00                                       | P18831                   | SWISSPROT                     | NADH-UBIQUINONE OXIDOREDUCTASE CHAIN 4   |
| 7781                   | 20837                 | 34330             | 0.88                 | 3.2E+00                                       | P04276                   | SWISSPROT                     | VON WILLEBRAND FACTOR PRECURSOR (VWF)  |
| 7852                   | 21002                 | 34513             | 2.41                 | 3.2E+00                                       | Y13655.1                 | NT                            | Chlamydomonas reinhardtii chloroplast DNA for rps8, ycf4, ycf3, rps18 genes  |
| 7852                   | 21002                 | 34514             | 2.41                 | 3.2E+00                                       | Y13655.1                 | NT                            | Chlamydomonas reinhardtii chloroplast DNA for rps8, ycf4, ycf3, rps18 genes  |
| 8230                   | 22308                 |                   | 6.28                 | 3.2E+00                                       | P13061                   | SWISSPROT                     | PERILIPIN [NIFE] HYDROGENASE SMALL SUBUNIT (NIFE HYDROGENLYASE SMALL CHAIN)  |
| 8730                   | 22795                 | 36388             | 1.31                 | 3.2E+00                                       | M86383.1                 | NT                            | S. cerevisiae trehalase (LVT) gene, complete cds   |
| 10345                  | 23330                 | 36881             | 2.06                 | 3.2E+00                                       | AB018081.2               | NT                            | Oryzias latipes OIG88 gene for guanylyl cyclase C, complete cds  |
| 12219                  | 25189                 |                   | 2.99                 | 3.2E+00                                       | L39336.1                 | NT                            | Sus scrofa choline acetyltransferase gene, promoter region   |
| 5895                   | 19181                 | 32503             | 2.29                 | 3.1E+00                                       | Q10135                   | SWISSPROT                     | HYPOPHOSPHATE 142.6 KD PROTEIN C28E2.02 IN CHROMOSOME I  |
| 7547                   | 20619                 | 34095             | 0.91                 | 3.1E+00                                       | P62178                   | SWISSPROT                     | TRIOSE PHOSPHATE PHOSPHATE TRANSLOCATOR, NON-GREEN PLASTID PRECURSOR (GTP1)  |
| 7804                   | 20658                 |                   | 1.09                 | 3.1E+00                                       | AF303225.1               | NT                            | Bacillus albacapsulatus peptidase (pae) gene, complete cds   |
| 8279                   | 21381                 | 34880             | 0.51                 | 3.1E+00                                       | P40885                   | SWISSPROT                     | PROBABLE UBIQUITIN-PROTEIN LIGASE HUL4   |
| 8801                   | 21880                 | 35417             | 5.14                 | 3.1E+00                                       | P49894                   | SWISSPROT                     | TYPE I IODOTHYRONINE DEIODINASE (TYPE I 5'DEIODINASE) (DIOI) (TYPE 1 DII) (SDI)  |
| 8801                   | 21880                 | 35418             | 5.14                 | 3.1E+00                                       | P49894                   | SWISSPROT                     | TYPE I IODOTHYRONINE DEIODINASE (TYPE I 5'DEIODINASE) (DIOI) (TYPE 1 DII) (SDI)  |
|                        |                       |                   |                      |   |                          | SWISSPROT                     | GLUTAMATE [NMDA] RECEPTOR SUBUNIT EPSILON 3 PRECURSOR (N-METHYL D-ASPARTATE<br>RECEPTOR SUBTYPE 2C) (NR2C) (NMDAR2C)   |
| 9459                   | 22575                 |                   | 3.7                  | 3.1E+00                                       | Q14957                   | SWISSPROT                     | COLLAGEN ALPHA 2(I) CHAIN PRECURSOR  |
| 9528                   | 22591                 | 36102             | 0.55                 | 3.1E+00                                       | Q01148                   | SWISSPROT                     | Chlorella vulgaris chloroplast, complete genome  |
| 10100                  | 23138                 | 36738             | 0.78                 | 3.1E+00                                       | 7524769                  | NT                            | HYPOPHOSPHATE 142.6 KD PROTEIN C28E2.02 IN CHROMOSOME III  |
| 10183                  | 23230                 |                   | 0.56                 | 3.1E+00                                       | Q10125                   | SWISSPROT                     | DEOXYHYDROLYSINE SYNTHASE (DHS)  |
| 10543                  | 23578                 | 37187             | 4.09                 | 3.1E+00                                       | P48368                   | SWISSPROT                     | GENOME POLYMERASE [CONTAINS: CAPSID PROTEIN C (CORE PROTEIN); MATRIX PROTEIN<br>(ENVELOPE PROTEIN M); MAJOR ENVELOPE PROTEIN E; NONSTRUCTURAL PROTEINS NS1,<br>NS2A, NS2B, NS4A AND NS4B; HELICASE (NS3); RNA-DIRECTED RNA POLYMERASE (NS5)] |
|                        |                       |                   |                      |   |                          | SWISSPROT                     | retinoid acid nuclear receptor isoform beta 2 [mice, embryonal carcinoma cell line, PCC7-MZ1, mRNA, 2871<br>nt]  |
| 11751                  | 23837                 |                   | 2.45                 | 3.1E+00                                       | P33515                   | SWISSPROT                     | Brassica rapa pollen coat protein homolog (BAN103) gene, complete cds  |
| 11771                  | 24783                 |                   | 2.49                 | 3.1E+00                                       | S66800.1                 | NT                            |  |
| 13019                  | 25570                 |                   | 1.17                 | 3.1E+00                                       | U77888.1                 | NT                            |  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit<br>Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|-----------------------------|-------------------------------|--|
| 2889                   | 18078                 | 29095             | 0.95                 | 3.0E+00                                       | 8923894                     | NT                            | Homo sapiens hypothetical protein PRO0889 (PRO0889), mRNA  |
| 6454                   | 18654                 | 31693             | 1.29                 | 3.0E+00                                       | X59098.1                    | NT                            | S. aureus genes encoding S aurei DNA methyltransferase and S aurei restriction endonuclease  |
| 6886                   | 18644                 | 33234             | 0.82                 | 3.0E+00                                       | X56037.1                    | NT                            | Corynebacterium glutamicum thrC gene for threonine synthase (EC 4.2.99.2)  |
| 6888                   | 18644                 | 33235             | 0.82                 | 3.0E+00                                       | X56037.1                    | NT                            | Corynebacterium glutamicum thrC gene for threonine synthase (EC 4.2.99.2)  |
| 7306                   | 20388                 |                   | 11.21                | 3.0E+00                                       | P18406                      | SWISSPROT                     | CYR01 PROTEIN PRECURSOR (SCH01)  |
| 7346                   | 20428                 |                   | 0.7                  | 3.0E+00                                       | Q13201                      | SWISSPROT                     | ENDOTHELIAL CELL MULTIMERIN PRECURSOR  |
| 8103                   | 22187                 |                   | 1.62                 | 3.0E+00                                       | X67638.1                    | NT                            | B. napus DNA for myosinase   |
| 10501                  | 23636                 | 37146             | 0.66                 | 3.0E+00                                       | Q58905                      | SWISSPROT                     | S-ADENOSYLMETHIONINE SYNTHETASE (METHIONINE ADENOSYLTRANSFERASE) (ADOMET SYNTHETASE)   |
| 11250                  | 24928                 | 37067             | 4.96                 | 3.0E+00                                       | P51842                      | SWISSPROT                     | RETINAL GUANYLYL CYCLASE 2 PRECURSOR (GUANYLYL CYCLASE 2F, RETINAL) (RETGC-2) (ROD OUTER SEGMENT MEMBRANE GUANYLYL CYCLASE 2) (ROS-GC2) (GUANYLYL CYCLASE F) (GCF) |
| 11250                  | 24328                 | 37068             | 4.96                 | 3.0E+00                                       | P51842                      | SWISSPROT                     | RETINAL GUANYLYL CYCLASE 2 PRECURSOR (GUANYLYL CYCLASE 2F, RETINAL) (RETGC-2) (ROD OUTER SEGMENT MEMBRANE GUANYLYL CYCLASE 2) (ROS-GC2) (GUANYLYL CYCLASE F) (GCF) |
| 11885                  | 24873                 | 38570             | 1.37                 | 3.0E+00                                       | P34194                      | SWISSPROT                     | NADH-UBIQUINONE OXIDOREDUCTASE CHAIN 4   |
| 2067                   | 16208                 | 28324             | 2.69                 | 2.9E+00                                       | AE002225.2                  | NT                            | Chlamydia pneumoniae AR39, section 63 of 94 of the complete genome   |
| 7049                   | 20102                 | 33519             | 1.65                 | 2.9E+00                                       | Z38878.1                    | NT                            | F. pringlei gdcSPA gene for P-protein of the glycine cleavage system   |
| 7300                   | 20439                 | 33888             | 4.68                 | 2.9E+00                                       | O14514                      | SWISSPROT                     | BRAIN-SPECIFIC ANGIOGENESIS INHIBITOR 1 PRECURSOR  |
| 7360                   | 20439                 | 33900             | 4.68                 | 2.9E+00                                       | O14514                      | SWISSPROT                     | BRAIN-SPECIFIC ANGIOGENESIS INHIBITOR 1 PRECURSOR  |
| 7614                   | 20684                 | 34160             | 6.19                 | 2.9E+00                                       | P46689                      | SWISSPROT                     | ADHERENCE FACTOR (ADHESION AND AGGREGATION MEDIATING SURFACE ANTIGEN)  |
| 8062                   | 21135                 | 34655             | 0.57                 | 2.9E+00                                       | P05944                      | SWISSPROT                     | STRUCTURAL POLYPROTEIN [CONTAINS: MAJOR STRUCTURAL PROTEIN VP2; NONSTRUCTURAL PROTEIN VP4; MINOR STRUCTURAL PROTEIN VP3]   |
| 8062                   | 21135                 | 34656             | 0.57                 | 2.9E+00                                       | P05944                      | SWISSPROT                     | STRUCTURAL POLYPROTEIN [CONTAINS: MAJOR STRUCTURAL PROTEIN VP2; NONSTRUCTURAL PROTEIN VP4; MINOR STRUCTURAL PROTEIN VP3]   |
| 8289                   | 21371                 | 34892             | 0.81                 | 2.9E+00                                       | BF344171.1                  | EST_HUMAN                     | 802017415F1 NC1 CGAP_Bn64 Homo sapiens cDNA clone IMAGE:4153059 5'   |
| 9438                   | 22512                 |                   | 0.82                 | 2.9E+00                                       | AL002153.2                  | NT                            | Sequitus oedipus gene for seminal vesicle secreted protein semenogelin I   |
| 1486                   | 14639                 | 27722             | 4.77                 | 2.8E+00                                       | AF186336.1                  | NT                            | Bufo harrisi murexase K (malk) gene, partial cds; chloroplast gene for chloroplast product   |
| 1682                   | 14914                 |                   | 3.14                 | 2.8E+00                                       | AL101692.2                  | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 52  |
| 7400                   | 20535                 | 34010             | 5.05                 | 2.8E+00                                       | 8369724                     | NT                            | Mus musculus endonuclease (LOC53423), mRNA   |
| 9813                   | 22653                 |                   | 0.6                  | 2.8E+00                                       | BE595182.1                  | EST_HUMAN                     | 601342759F1 NIH_MGC_53 Homo sapiens cDNA clone IMAGE:3684807 5'  |
| 10628                  | 20535                 | 34010             | 1.53                 | 2.8E+00                                       | 8369724                     | NT                            | Mus musculus endonuclease (LOC53423), mRNA   |
| 240                    | 13462                 | 28490             | 13.96                | 2.7E+00                                       | 6679306                     | NT                            | Mus musculus per-hexamer repeat gene 3 (Phw3), mRNA  |
| 240                    | 13462                 | 28491             | 13.96                | 2.7E+00                                       | 6679306                     | NT                            | Mus musculus per-hexamer repeat gene 3 (Phw3), mRNA  |

Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 5089                   | 18953                 | 32148             | 1.41                 | 2.7E+00                                       | L14005.1                 | NT                            | Homo sapiens apoa polymorphism Kringle IV gene, exons 1 and 2   |
| 8039                   | 21420                 |                   | 0.74                 | 2.7E+00                                       | U15947.1                 | NT                            | Ipomoea purpurea chalcone synthase (CHSE) gene including complete 5'UTR and complete cds              |
| 8168                   | 22246                 |                   | 2.16                 | 2.7E+00                                       | AL116450.1               | NT                            | Botrytis cinerea strain T4 cDNA library under conditions of nitrogen deprivation                      |
| 9832                   | 21075                 | 34587             | 0.61                 | 2.7E+00                                       | AW088191.1               | EST_HUMAN                     | xx88612x1 NCL_CGAP_Bn35 Homo sapiens cDNA clone IMAGE:2581374 3' similar to gb:M17783                 |
| 10718                  | 23761                 |                   | 1.94                 | 2.7E+00                                       | BE063527.1               | EST_HUMAN                     | THYMOSIN BETA-4 (HUMAN)   |
| 4786                   | 17831                 | 30817             | 5.51                 | 2.6E+00                                       | AF088749.1               | NT                            | QMO-BTD281-031189-087-h04 BT0281 Homo sapiens cDNA  |
| 5065                   | 18959                 | 32143             | 2.04                 | 2.6E+00                                       | 6755601                  | NT                            | Mus musculus sphingosine kinase (SPHK1b) mRNA, complete cds   |
| 5065                   | 18959                 | 32144             | 2.04                 | 2.6E+00                                       | 6755601                  | NT                            | Mus musculus SRY-box containing gene 13 (Ssx13), mRNA   |
| 5947                   | 19133                 |                   | 2.85                 | 2.6E+00                                       | Y17082.1                 | NT                            | Mus musculus SRY-box containing gene 13 (Ssx13), mRNA   |
| 7727                   | 26220                 |                   | 1.16                 | 2.6E+00                                       | AJ224639.1               | NT                            | Mycobacterium fortuitum furA II gene  |
| 7878                   | 20831                 |                   | 11.26                | 2.6E+00                                       | AF235502.1               | NT                            | Homo sapiens Surf-6 and Surf-6 genes  |
| 8249                   | 21331                 | 34847             | 1.17                 | 2.6E+00                                       | AJ132180.1               | NT                            | Mus musculus SH2-containing inositol 5-phosphatase (Ship) gene, exons 16 through 27, and complete cds |
| 8249                   | 21331                 | 34848             | 1.17                 | 2.6E+00                                       | AJ132180.1               | NT                            | faba bean necrotic yellow virus C3-Eg gene, isolate Egyptian EV1-93                                   |
| 8658                   | 22808                 | 30481             | 2.86                 | 2.6E+00                                       | AL181540.2               | NT                            | faba bean necrotic yellow virus C2-Eg gene, isolate Egyptian EV1-93                                   |
| 10563                  | 23508                 |                   | 1.91                 | 2.6E+00                                       | 6055183                  | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 40   |
| 11281                  | 24347                 | 37884             | 2.2                  | 2.6E+00                                       | AF143676.1               | NT                            | Mus musculus cleavage and polyadenylation specificity factor 3 (Cpasf3), mRNA                         |
| 12917                  | 26064                 |                   | 3.3                  | 2.6E+00                                       | 11419220                 | NT                            | Hantavirus Z10 segment M G1/G2 glycoprotein (Z10) gene, complete cds                                  |
| 1402                   | 14845                 | 27726             | 3.03                 | 2.5E+00                                       | AJ271844.1               | NT                            | Homo sapiens ATP-binding cassette, sub-family B (MDR/TAP), member 4 (ABCB4), mRNA                     |
| 1402                   | 14845                 | 27727             | 3.03                 | 2.5E+00                                       | AJ271844.1               | NT                            | Aspergillus nidulans recQ gene for DNA helicase, exons 1-4  |
| 5834                   | 19120                 | 32431             | 2.24                 | 2.5E+00                                       | P13485                   | SWISSPROT                     | Aspergillus nidulans recQ gene for DNA helicase, exons 1-4  |
| 5834                   | 19120                 | 32432             | 2.24                 | 2.5E+00                                       | P13485                   | SWISSPROT                     | TEICHOIC ACID BIOSYNTHESIS PROTEIN F  |
| 6886                   | 19120                 | 32431             | 1.42                 | 2.5E+00                                       | P13485                   | SWISSPROT                     | TEICHOIC ACID BIOSYNTHESIS PROTEIN F  |
| 6886                   | 19120                 | 32432             | 1.42                 | 2.5E+00                                       | P13485                   | SWISSPROT                     | TEICHOIC ACID BIOSYNTHESIS PROTEIN F  |
| 6886                   | 20020                 | 32429             | 0.77                 | 2.5E+00                                       | D30082.1                 | NT                            | Vibrio cholerae ctxA gene and ctxB gene for cholera toxins, complete cds                              |
| 7836                   | 20868                 | 34494             | 1.19                 | 2.5E+00                                       | AW049158.1               | EST_HUMAN                     | QV4-FT0005-110500-2015-g07 FT0005 Homo sapiens cDNA   |
| 7885                   | 21034                 | 34547             | 0.82                 | 2.5E+00                                       | 4802802                  | NT                            | Homo sapiens clafitin, heavy polypeptide-like 1 (CLTCL1) mRNA   |
| 9304                   | 22380                 | 36631             | 1.65                 | 2.5E+00                                       | D50307.1                 | NT                            | Rice DNA for aldolase C-1, complete cds   |
| 10057                  | 23095                 | 36687             | 0.71                 | 2.5E+00                                       | BE297758.1               | EST_HUMAN                     | 601176778F1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:36831080 5'                                      |
| 11832                  | 24821                 |                   | 1.39                 | 2.5E+00                                       | P40170                   | SWISSPROT                     | DNAJ PROTEIN  |
| 12216                  | 25167                 |                   | 1.85                 | 2.5E+00                                       | AF280685.1               | NT                            | Mus musculus EIF4H gene, partial cds; LIMK1 gene, complete cds; and ELN gene, partial cds             |
| 3078                   | 16254                 | 26276             | 0.89                 | 2.4E+00                                       | M24282.1                 | NT                            | Chicken alpha-3 collagen type VI mRNA, 3' and   |
| 5027                   | 18156                 | 31134             | 4.93                 | 2.4E+00                                       | 4803362                  | NT                            | Homo sapiens double C2-like domain, alpha (DOC2A) mRNA  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 6134                   | 10813                 | 32652             | 4.09                 | 2.4E+00                                       | P02843                   | SWISSPROT                     | VITELLOGENIN I PRECURSOR (YOLK PROTEIN 1)   |
| 7638                   | 20811                 | 34086             | 0.71                 | 2.4E+00                                       | BF667602.1               | EST_HUMAN                     | 602120856F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:4278012 5'   |
| 7538                   | 20811                 | 34086             | 0.71                 | 2.4E+00                                       | BF667602.1               | EST_HUMAN                     | 602120856F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:4278012 5'   |
| 8334                   | 21416                 | 34941             | 2.06                 | 2.4E+00                                       | P26842                   | SWISSPROT                     | CD27L RECEPTOR PRECURSOR (T-CELL ACTIVATION ANTIGEN CD27) (T14)   |
| 8334                   | 21416                 | 34942             | 2.06                 | 2.4E+00                                       | P26842                   | SWISSPROT                     | CD27L RECEPTOR PRECURSOR (T-CELL ACTIVATION ANTIGEN CD27) (T14)   |
| 8406                   | 21487                 |                   | 2.8                  | 2.4E+00                                       | AE001488.1               | NT                            | Helicobacter pylori, strain J99, section 47 of 132 of the complete genome   |
| 8852                   | 21831                 |                   | 1.72                 | 2.4E+00                                       | AW875126.1               | EST_HUMAN                     | RC2-PT0004-031288-011-005 PT0004 Homo sapiens cDNA  |
| 9028                   | 22107                 | 35648             | 8.89                 | 2.4E+00                                       | P24091                   | SWISSPROT                     | ENDOCHITINASE B PRECURSOR (CHN-B)   |
| 10244                  | 23279                 | 36874             | 2.26                 | 2.4E+00                                       | P13673                   | SWISSPROT                     | SKIN GRANULE PROTEIN PRECURSOR  |
| 10244                  | 23279                 | 36875             | 2.26                 | 2.4E+00                                       | P13673                   | SWISSPROT                     | SKIN GRANULE PROTEIN PRECURSOR  |
| 10313                  | 23348                 | 36954             | 2.31                 | 2.4E+00                                       | X92911.1                 | NT                            | H.sapiens CTGF gene and promoter region   |
| 10449                  | 23484                 |                   | 7.28                 | 2.4E+00                                       | P06099                   | SWISSPROT                     | XYLULOSE KINASE (XYLULOSE KINASE)   |
| 10529                  | 23563                 | 37166             | 1.64                 | 2.4E+00                                       | BE326702.1               | EST_HUMAN                     | h63806.x1 NC1 CGAP Kld11 Homo sapiens cDNA clone IMAGE:3133187 3'   |
| 10528                  | 23563                 | 37170             | 1.64                 | 2.4E+00                                       | BE326702.1               | EST_HUMAN                     | h63806.x1 NC1 CGAP Kld11 Homo sapiens cDNA clone IMAGE:3133187 3'   |
| 10818                  | 23851                 | 37474             | 1.06                 | 2.4E+00                                       | Q51481                   | SWISSPROT                     | DEMYELINATION REGULATORY PROTEIN N1RQ   |
| 11335                  | 24398                 | 38047             | 1.36                 | 2.4E+00                                       | Y14078.1                 | NT                            | Bacillus subtilis chromosomal DNA, region 75 degrees: gppPKD operon and downstream                                |
| 11640                  | 24720                 | 38413             | 2.44                 | 2.4E+00                                       | AF168652.2               | NT                            | Fragaria x ananassa cytosolic ascorbate peroxidase (ApoSC) gene, ApoSC-c allele, complete cds                     |
| 1282                   | 14438                 | 27507             | 8.88                 | 2.3E+00                                       | Z46724.1                 | NT                            | G. domesticus artificial single chain antibody gene (L3)  |
| 4237                   | 17383                 |                   | 1.41                 | 2.3E+00                                       | AJ401081.1               | NT                            | Bos taurus partial cytb gene for cytochrome b   |
| 5967                   | 10143                 |                   | 0.91                 | 2.3E+00                                       | N86245.1                 | EST_HUMAN                     | J73-40F Human fetal heart, Lambda ZAP Express Homo sapiens cDNA clone J73-40 5' similar to PROLYLCARBOXYPEPTIDASE |
| 7612                   | 20882                 | 34168             | 2.76                 | 2.3E+00                                       | 6978564                  | NT                            | Rattus norvegicus ATPase, Ca++ transporting, ubiquitous (Atp2a3), mRNA  |
| 7771                   | 26221                 |                   | 2.37                 | 2.3E+00                                       | P07199                   | SWISSPROT                     | MAJOR CENTROMERE AUTOANTIGEN B (CENTROMERE PROTEIN B) (CENP-B)  |
| 7838                   | 21008                 | 34518             | 1.28                 | 2.3E+00                                       | X60265.1                 | NT                            | M. mizsei drakJ and drakJ genes homologues coding for DnaK and DnaJ   |
| 8310                   | 22388                 | 36938             | 0.62                 | 2.3E+00                                       | 6835317                  | NT                            | Polydorus ornithinilis mitochondrion, complete genome   |
| 8371                   | 22446                 | 36008             | 1.66                 | 2.3E+00                                       | Q11127                   | SWISSPROT                     | ALPHA-(1,3)-FUCOSYLTRANSFERASE (GALACTOSIDE 3-L-FUCOSYLTRANSFERASE) (FUCOSYLTRANSFERASE 4) (FUCT-IV)              |
| 11041                  | 24120                 | 37763             | 2.72                 | 2.3E+00                                       | Q07078                   | SWISSPROT                     | ANNEXIN VII (SYNEXIN)   |
| 12075                  | 25058                 | 38763             | 2.14                 | 2.3E+00                                       | BF541887.1               | EST_HUMAN                     | 6020689121F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:4088173 5'  |
| 12075                  | 25058                 | 38764             | 2.14                 | 2.3E+00                                       | BF541887.1               | EST_HUMAN                     | 6020689121F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:4088173 5'  |
| 12445                  | 25315                 | 32091             | 7.41                 | 2.3E+00                                       | BE866237.1               | EST_HUMAN                     | 601433673F1 NIH_MGC_72 Homo sapiens cDNA clone IMAGE:3918843 5'   |
| 4126                   | 17280                 | 30276             | 1.06                 | 2.2E+00                                       | AF020528.1               | NT                            | Magnaporthe grisea Class IV chitin synthase (chs4) gene, complete cds   |
| 4432                   | 17572                 | 30553             | 4.12                 | 2.2E+00                                       | D67071.1                 | NT                            | Rat gene for regucalcin, exon1 (non-coding exon)  |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO. | Exon<br>SEQ ID<br>NO. | ORF SEQ<br>ID NO. | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 4432                   | 17572                 | 30554             | 4.12                 | 2.2E+00                                       | D87071.1                 | NT                            | Rat gene for regucalcin, exon1 (non-coding exon)  |
| 5458                   | 18858                 | 31638             | 11.22                | 2.2E+00                                       | O88307                   | SWISSPROT                     | SORTLIN-RELATED RECEPTOR PRECURSOR (SORTING PROTEIN-RELATED RECEPTOR CONTAINING LDLR CLASS A REPEATS) (MSORLA-1) (LOW-DENSITY LIPOPROTEIN RECEPTOR RELATIVE WITH 11 LIGAND-BINDING REPEATS) (LDLR RELATIVE WITH 11 LIGAND-BINDING REPEATS) (LR11) (>) |
| 5458                   | 18858                 | 31637             | 11.22                | 2.2E+00                                       | O88307                   | SWISSPROT                     | SORTLIN-RELATED RECEPTOR PRECURSOR (SORTING PROTEIN-RELATED RECEPTOR CONTAINING LDLR CLASS A REPEATS) (MSORLA-1) (LOW-DENSITY LIPOPROTEIN RECEPTOR RELATIVE WITH 11 LIGAND-BINDING REPEATS) (LDLR RELATIVE WITH 11 LIGAND-BINDING REPEATS) (LR11) (>) |
| 5976                   | 19160                 | 32478             | 1.83                 | 2.2E+00                                       | BE927220.1               | EST_HUMAN                     | RC3-CT0254-300800-022-008 CT0254 Homo sapiens cDNA  |
| 5976                   | 19160                 | 32479             | 1.83                 | 2.2E+00                                       | BE927220.1               | EST_HUMAN                     | RC3-CT0254-300800-022-008 CT0254 Homo sapiens cDNA  |
| 6187                   | 19363                 | 32711             | 9.30                 | 2.2E+00                                       | BE280383.1               | EST_HUMAN                     | 600943-40111 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:2869777 3'  |
| 6484                   | 19851                 | 33013             | 2.87                 | 2.2E+00                                       | Q00835                   | SWISSPROT                     | MINOR VIRION STRUCTURAL PROTEIN ML-2  |
| 6730                   | 19883                 | 33278             | 3.14                 | 2.2E+00                                       | P51459                   | SWISSPROT                     | INSULIN-LIKE GROWTH FACTOR II PRECURSOR (IGF-II) (SOMATOMEDIN A)  |
| 7097                   | 18524                 |                   | 3.4                  | 2.2E+00                                       | AA594574.1               | EST_HUMAN                     | n65802.s1 NCI_CGAP_Co10 Homo sapiens cDNA clone IMAGE:1058379 3'  |
| 7470                   | 20545                 | 34017             | 0.83                 | 2.2E+00                                       | AA137027.1               | EST_HUMAN                     | z19704.t1 Stragene fetal retina 83/702 Homo sapiens cDNA clone IMAGE:566143 5'  |
| 7783                   | 20839                 | 34332             | 11.91                | 2.2E+00                                       | AA449012.1               | EST_HUMAN                     | z005g10.t1 Soares_t04a_Nb21F8_9w Homo sapiens cDNA clone IMAGE:785534 5'  |
| 7886                   | 20820                 | 34427             | 0.86                 | 2.2E+00                                       | P54918                   | SWISSPROT                     | ALANINE RACEMASE  |
| 8294                   | 21376                 | 34896             | 0.85                 | 2.2E+00                                       | BE301590.1               | EST_HUMAN                     | bb17h12.x1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:2833207 3' similar to gb.D45836 Mouse mRNA for nuclear pore-targeting complex component of (MOUSE);   |
| 8294                   | 21376                 | 34897             | 0.85                 | 2.2E+00                                       | BE301590.1               | EST_HUMAN                     | bb17h12.x1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:2833207 3' similar to gb.D45836 Mouse mRNA for nuclear pore-targeting complex component of (MOUSE);   |
| 9542                   | 22807                 |                   | 12.40                | 2.2E+00                                       | BE741678.1               | EST_HUMAN                     | 601594733F1 NIH_MGC_9 Homo sapiens cDNA clone IMAGE:3948561 5'  |
| 9788                   | 28860                 |                   | 2.12                 | 2.2E+00                                       | Q04708                   | SWISSPROT                     | TRANSPONSON TY1 PROTEIN A   |
| 10289                  | 23294                 | 36860             | 1.12                 | 2.2E+00                                       | AI280373.1               | EST_HUMAN                     | q168103.x1 Soares_placenta_21w6weeks_21w6HP609W Homo sapiens cDNA clone IMAGE:1803985 3' similar to gb.Y00433 GLUTATHIONE PEROXIDASE (HUMAN);   |
| 10289                  | 23294                 | 36861             | 1.12                 | 2.2E+00                                       | AI280373.1               | EST_HUMAN                     | q168103.x1 Soares_placenta_21w6weeks_21w6HP609W Homo sapiens cDNA clone IMAGE:1803985 3' similar to gb.Y00433 GLUTATHIONE PEROXIDASE (HUMAN);   |
| 10301                  | 23336                 | 36841             | 3.04                 | 2.2E+00                                       | BF246782.1               | EST_HUMAN                     | 601555891F1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:4075391 5'   |
| 10673                  | 23707                 | 37315             | 2.8                  | 2.2E+00                                       | AF183416.1               | NT                            | Homo sapiens ovarian granulosa cell 13.0 kDa protein RGR74 homolog mRNA, complete cds   |
| 11726                  | 23912                 | 37536             | 3.3                  | 2.2E+00                                       | P07911                   | SWISSPROT                     | URONOMULIN PRECURSOR (TAMM-HORSFALL URINARY GLYCOPROTEIN) (THIP)  |
| 11915                  | 24902                 | 38605             | 6.04                 | 2.2E+00                                       | P10407                   | SWISSPROT                     | EARLY E1A 28 KD PROTEIN   |
| 583                    | 18016                 | 28795             | 13.2                 | 2.1E+00                                       | AF132812.2               | NT                            | Mus musculus pre-T cell receptor alpha gene, enhancer region and upstream region  |
| 3878                   | 16841                 |                   | 1.19                 | 2.1E+00                                       | AW449366.1               | EST_HUMAN                     | UHH-B19-ek-9-08-0-U1.s1 NCI_CGAP_Sub5 Homo sapiens cDNA clone IMAGE:2734550 3'  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 6260                   | 19434                 |                   | 0.97                 | 2.1E+00                                       | P75357                   | SWISSPROT                     | HYPOTHETICAL PROTEIN MG302 HOMOLOG   |
| 6947                   | 20280                 | 33688             | 3.51                 | 2.1E+00                                       | O70169                   | SWISSPROT                     | ALPHA-2-HS-GLYCOPROTEIN PRECURSOR (FETUIN-A)   |
| 7169                   | 20302                 | 33745             | 0.77                 | 2.1E+00                                       | 4503430                  | NT                            | Homo sapiens dyx19c1, limb girdle muscular dystrophy 2B (autosomal recessive) (DYSF) mRNA, and translated products |
| 7191                   | 20056                 | 33468             | 5.88                 | 2.1E+00                                       | N28575.1                 | EST_HUMAN                     | W08a10.31 Soares melanocyte ZNF118 Homo sapiens cDNA clone IMAGE:270618 3' similar to gb:U55004                    |
| 8694                   | 21774                 |                   | 2.43                 | 2.1E+00                                       | AU123630.1               | EST_HUMAN                     | TRANSCRIPTION INITIATION FACTOR TFIIID (HUMAN);  |
| 1223                   | 14383                 | 27444             | 1.32                 | 2.0E+00                                       | AF180527.1               | NT                            | AU123630 NT2RM2 Homo sapiens cDNA clone NT2RM200671 5'   |
| 1223                   | 14383                 | 27445             | 1.32                 | 2.0E+00                                       | AF180527.1               | NT                            | Homo sapiens p22Dc1del (DOKDEL) mRNA, complete cds   |
| 1366                   | 14520                 | 27585             | 1.37                 | 2.0E+00                                       | AF204627.1               | NT                            | Homo sapiens p22Dc1del (DOKDEL) mRNA, complete cds   |
| 1608                   | 14750                 |                   | 3.09                 | 2.0E+00                                       | P25582                   | SWISSPROT                     | Oryctolagus cuniculus Ncr-K+-ATPase beta 1 subunit mRNA, complete cds  |
| 2216                   | 16360                 | 28480             | 7.2                  | 2.0E+00                                       | Z76278.1                 | NT                            | PUTATIVE RRNA METHYLTRANSFERASE SPB1   |
| 2216                   | 16360                 | 28481             | 7.2                  | 2.0E+00                                       | Z76278.1                 | NT                            | R. norvegicus mRNA for collagen alpha1 type I  |
| 4216                   | 17365                 | 30363             | 1.71                 | 2.0E+00                                       | AW684498.1               | EST_HUMAN                     | R. norvegicus mRNA for collagen alpha1 type I  |
| 4216                   | 17365                 | 30354             | 1.71                 | 2.0E+00                                       | AW684498.1               | EST_HUMAN                     | h113c05.x1 NCI CGAP GU1 Homo sapiens cDNA clone IMAGE:2972168 3' similar to gb:X01677                              |
| 7722                   | 20786                 |                   | 0.86                 | 2.0E+00                                       | P07586                   | SWISSPROT                     | GLYCERALDEHYDE 3-PHOSPHATE DEHYDROGENASE, LIVER (HUMAN);   |
| 8214                   | 21286                 | 34815             | 4                    | 2.0E+00                                       | AB008678.1               | NT                            | GLYCERALDEHYDE 3-PHOSPHATE DEHYDROGENASE, LIVER (HUMAN);   |
| 8214                   | 21286                 | 34816             | 4                    | 2.0E+00                                       | AB008678.1               | NT                            | h113c05.x1 NCI CGAP GU1 Homo sapiens cDNA clone IMAGE:2972168 3' similar to gb:X01677                              |
| 8214                   | 21286                 | 34817             | 4                    | 2.0E+00                                       | AB008678.1               | NT                            | GLYCERALDEHYDE 3-PHOSPHATE DEHYDROGENASE, LIVER (HUMAN);   |
| 9122                   | 22201                 | 35743             | 3.04                 | 2.0E+00                                       | F31500.1                 | EST_HUMAN                     | STRUCTURAL POLYPEPTIDE [CONTAINS: NUCLEOCAPSID PROTEIN G; MEMBRANE GLYCOPROTEINS E1 AND E2]                        |
| 12815                  | 26022                 | 31670             | 6.76                 | 2.0E+00                                       |                          | NT                            | Escherichia coli 0157 DNA, map position at 46 min., complete cds   |
| 5715                   | 18908                 | 32202             | 4.28                 | 1.9E+00                                       |                          | NT                            | Escherichia coli 0157 DNA, map position at 46 min., complete cds   |
| 5715                   | 18908                 | 32203             | 4.28                 | 1.9E+00                                       |                          | NT                            | Escherichia coli 0157 DNA, map position at 46 min., complete cds   |
| 6225                   | 19400                 | 32750             | 1.2                  | 1.9E+00                                       | BE96895.1                | EST_HUMAN                     | HSPD22703 HMB Homo sapiens cDNA clone s4000117808  |
| 6782                   | 19847                 |                   | 0.92                 | 1.9E+00                                       | AW845689.1               | EST_HUMAN                     | Gallus gallus mitochondrion, complete genome   |
| 6888                   | 20040                 |                   | 1.91                 | 1.9E+00                                       | Q89627                   | SWISSPROT                     | Mus musculus Inositol 1,4,5-trisphosphate receptor 1 (Itp1), mRNA  |
| 8693                   | 21733                 | 35272             | 2.21                 | 1.9E+00                                       | P02467                   | SWISSPROT                     | Mus musculus Inositol 1,4,5-trisphosphate receptor 1 (Itp1), mRNA  |
| 8693                   | 21733                 | 35273             | 2.21                 | 1.9E+00                                       | P02467                   | SWISSPROT                     | 601679636F1 NIH_MGC_78 Homo sapiens cDNA clone IMAGE:3946881 5'  |
| 8856                   | 21638                 |                   | 3.32                 | 1.9E+00                                       | BF360208.1               | EST_HUMAN                     | MRO-CT0063-071088-002-g02 CT0063 Homo sapiens cDNA   |
| 9096                   | 22174                 |                   | 1.86                 | 1.9E+00                                       | O61781                   | SWISSPROT                     | CTD-BINDING SR-LIKE PROTEIN RA4  |
|                        |                       |                   |                      |   |                          |                               | COLLAGEN ALPHA 2(I) CHAIN PRECURSOR  |
|                        |                       |                   |                      |   |                          |                               | COLLAGEN ALPHA 2(I) CHAIN PRECURSOR  |
|                        |                       |                   |                      |   |                          |                               | CM3-MT0114-010600-323-H12 MT0114 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | ARGININE DEIMINASE (ADI) (ARGININE DIHYDROLASE) (AD)   |

Page 16 of 550  
Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit<br>Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|-----------------------------|-------------------------------|---|
| 9830                   | 22870                 | 36452             | 0.63                 | 1.9E+00                                       | AA689125.1                  | EST_HUMAN                     | ab94404.s1 Stradiene lung (#637210) Homo sapiens cDNA clone IMAGE:854574 3' similar to contains Alu repetitive element; contains element L1.1 repetitive element; |
| 10760                  | 23823                 | 37447             | 0.67                 | 1.9E+00                                       | AF248280.1                  | NT                            | Homo sapiens gag-pro-pol precursor protein gene, partial cds  |
| 3162                   | 16337                 | 28346             | 1.69                 | 1.9E+00                                       | P21004                      | SWISSPROT                     | PROTEIN B8 PRECURSOR  |
| 3190                   | 16365                 | 28370             | 2.15                 | 1.9E+00                                       | U04355.1                    | NT                            | Synochococcus sp. PCC7942 copper transporting P-ATPase (cdaA) and ATP synthase epsilon subunit (atpE) genes, complete cds   |
| 3190                   | 16365                 | 28371             | 2.15                 | 1.9E+00                                       | U04355.1                    | NT                            | Synochococcus sp. PCC7942 copper transporting P-ATPase (cdaA) and ATP synthase epsilon subunit (atpE) genes, complete cds   |
| 5988                   | 19173                 |                   | 1.63                 | 1.9E+00                                       | P18502                      | SWISSPROT                     | HEDGEHOG RECEPTOR (PATCHED PROTEIN)   |
| 6230                   | 19405                 | 32755             | 2.02                 | 1.9E+00                                       | BF311989.1                  | EST_HUMAN                     | 601897854F1 NIH_MGC_19 Homo sapiens cDNA clone IMAGE:4127364 5'   |
| 6528                   | 19682                 |                   | 1.28                 | 1.9E+00                                       | BF083327.1                  | EST_HUMAN                     | 602139470F1 NIH_MGC_46 Homo sapiens cDNA clone IMAGE:4298272 5'   |
| 6879                   | 20031                 | 33441             | 1.15                 | 1.9E+00                                       | BF305652.1                  | EST_HUMAN                     | 601893489F1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:4198058 5'   |
| 7204                   | 20069                 | 33479             | 1.22                 | 1.9E+00                                       | P21249                      | SWISSPROT                     | MAJOR ANTIGEN   |
| 7411                   | 20469                 |                   | 0.8                  | 1.9E+00                                       | P27127                      | SWISSPROT                     | LIPOPOLYSACCHARIDE 1,8-GALACTOSYLTRANSFERASE (UDP-D-GALACTOSE-<br>(GLUCOSYL)LIPOPOLYSACCHARIDE-ALPHA-1,3-D-GALACTOSYLTRANSFERASE)                                 |
| 8308                   | 21390                 | 34913             | 0.98                 | 1.9E+00                                       | P11989                      | SWISSPROT                     | RETROVIRUS-RELATED POL POLYPYRIMIDIN [CONTAINS: REVERSE TRANSCRIPTASE ;<br>ENDONUCLEASE]  |
| 8308                   | 21390                 | 34914             | 0.98                 | 1.9E+00                                       | P11989                      | SWISSPROT                     | RETROVIRUS-RELATED POL POLYPYRIMIDIN [CONTAINS: REVERSE TRANSCRIPTASE ;<br>ENDONUCLEASE]  |
| 9055                   | 22134                 | 36678             | 2.28                 | 1.9E+00                                       | O43281                      | SWISSPROT                     | EMBRYONAL FYN-ASSOCIATED SUBSTRATE (HEFS)   |
| 9376                   | 22451                 | 36013             | 0.78                 | 1.9E+00                                       | R31042.1                    | EST_HUMAN                     | y172a08.f1 Scarsa placenta Nb2HP Homo sapiens cDNA clone IMAGE:136278 5'  |
| 9462                   | 22518                 | 36081             | 0.82                 | 1.9E+00                                       | AW880004.1                  | EST_HUMAN                     | QV0-QT0030-070300-149-a03 OT0030 Homo sapiens cDNA  |
| 9698                   | 23034                 | 36828             | 0.47                 | 1.9E+00                                       | P06828                      | SWISSPROT                     | FUSION GLYCOPROTEIN PRECURSOR [CONTAINS: FUSION GLYCOPROTEIN F2; FUSION<br>GLYCOPROTEIN F1]   |
| 10054                  | 23082                 | 36894             | 0.94                 | 1.9E+00                                       | P27050                      | SWISSPROT                     | CHITINASE D PRECURSOR   |
| 10490                  | 23525                 |                   | 4.71                 | 1.9E+00                                       | AF111849.1                  | NT                            | Homo sapiens PRO0630 mRNA, complete cds   |
| 10777                  | 23810                 |                   | 0.75                 | 1.9E+00                                       | P44325                      | SWISSPROT                     | CYTIDINE DEAMINASE (CYTIDINE AMINOHYDROLASE) (CDA)  |
| 12575                  | 25994                 |                   | 4.97                 | 1.9E+00                                       | AF314254.1                  | NT                            | Chlamydomonas reinhardtii alternative oxidase 1 (AOX1) gene, nuclear gene encoding mitochondrial protein  |
| 12867                  | 26444                 |                   | 6.01                 | 1.9E+00                                       | 9508404                     | NT                            | Rattus norvegicus Actin-related protein complex 1b (Arp1b), mRNA  |
| 13005                  | 25887                 | 31654             | 1.45                 | 1.9E+00                                       | BF212412.1                  | EST_HUMAN                     | 601813714F1 NIH_MGC_54 Homo sapiens cDNA clone IMAGE:4048251 5'   |
| 1132                   | 14297                 | 27362             | 1.68                 | 1.7E+00                                       | Q60114                      | SWISSPROT                     | LEVANSUCRASE (BETA-D-FRUCTOFURANOSYL TRANSFERASE) (SUEROSE 6-FRUCTOSYL<br>TRANSFERASE)  |
| 2345                   | 15478                 | 28609             | 4.9                  | 1.7E+00                                       | AL163280.2                  | NT                            | Homo sapiens chromosome 21 segment HS21C080   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 2445                   | 15573                 | 28702             | 1.49                 | 1.7E+00                                       | A1141067.1               | EST_HUMAN                     | ox33r05x1 Sources_NIH-IMPu_S1 Homo sapiens cDNA clone IMAGE:1678137 3'  |
| 4581                   | 17718                 | 30701             | 0.98                 | 1.7E+00                                       | Q80114                   | SWISSPROT                     | LEVANSUCRASE (BETA-D-FRUCTOFURANOSYL TRANSFERASE) (SUCROSE 6-FRUCTOSYL TRANSFERASE)   |
| 5730                   | 18823                 | 32216             | 1.73                 | 1.7E+00                                       | BE063548.1               | EST_HUMAN                     | CN40-BT0282-171289-127 -05 BT0282 Homo sapiens cDNA   |
| 5730                   | 18823                 | 32217             | 1.73                 | 1.7E+00                                       | BE063548.1               | EST_HUMAN                     | CN40-BT0282-171289-127 -05 BT0282 Homo sapiens cDNA   |
| 6141                   | 19319                 | 32661             | 3.02                 | 1.7E+00                                       | Q97T78                   | SWISSPROT                     | COUP TRANSCRIPTION FACTOR 1 (COUP-TF1) (COUP-TF1)   |
| 6682                   | 19840                 | 33230             | 0.67                 | 1.7E+00                                       | P35916                   | SWISSPROT                     | [PYRUVATE DEHYDROGENASE (LIPOAMIDE)]-PHOSPHATASE, MITOCHONDRIAL PRECURSOR (PDP) (PYRUVATE DEHYDROGENASE PHOSPHATASE, CATALYTIC SUBUNIT) (PDP-C) |
| 7967                   | 20448                 | 33908             | 1.18                 | 1.7E+00                                       | Q03703                   | SWISSPROT                     | HYPOPHOSPHATASE 38.0 KD PROTEIN IN CAT2-AMID1 INTERGENIC REGION   |
| 7967                   | 20448                 | 33909             | 1.18                 | 1.7E+00                                       | Q03703                   | SWISSPROT                     | HYPOPHOSPHATASE 38.0 KD PROTEIN IN CAT2-AMID1 INTERGENIC REGION   |
| 8038                   | 21121                 | 34641             | 1.1                  | 1.7E+00                                       | AF021335.1               | NT                            | Mus musculus T cell receptor gamma locus, TCR gamma 2 and gamma 4 gene clusters   |
| 8222                   | 21304                 | 34825             | 1.08                 | 1.7E+00                                       | 6755715                  | NT                            | Mus musculus T-cell acute lymphocytic leukemia 1 (Tcl1), mRNA   |
| 8252                   | 21334                 | 34852             | 0.61                 | 1.7E+00                                       | BF530630.1               | EST_HUMAN                     | 602071917F1 NCI_CGAP_Bim67 Homo sapiens cDNA clone IMAGE:4214069 5'   |
| 8739                   | 21818                 | 36382             | 0.76                 | 1.7E+00                                       | AF245613.1               | NT                            | Hippoglossus hippoglossus Interferon inducible Mx protein (Mx) mRNA, complete cds   |
| 8828                   | 21907                 | 35519             | 1.63                 | 1.7E+00                                       | BF309000.1               | EST_HUMAN                     | 60169-4255F1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:4140084 5'  |
| 8901                   | 21980                 | 35519             | 0.68                 | 1.7E+00                                       | X68063.1                 | NT                            | M.musculus Ank-1 mRNA for erythroid ankyrin   |
| 8901                   | 21980                 | 35520             | 0.68                 | 1.7E+00                                       | X68063.1                 | NT                            | M.musculus Ank-1 mRNA for erythroid ankyrin   |
| 9014                   | 22093                 | 35833             | 1.03                 | 1.7E+00                                       | U19832.1                 | NT                            | Rattus norvegicus SA gene, partial cds  |
| 9350                   | 23859                 | 36981             | 2.44                 | 1.7E+00                                       | O60478                   | SWISSPROT                     | HOMEBOX PROTEIN DLX-3   |
| 9350                   | 23859                 | 36982             | 2.44                 | 1.7E+00                                       | O60478                   | SWISSPROT                     | HOMEBOX PROTEIN DLX-3   |
| 9806                   | 22846                 |                   | 1                    | 1.7E+00                                       | AF161380.1               | NT                            | Homo sapiens HSPC282 mRNA, partial cds  |
| 10375                  | 23410                 |                   | 0.54                 | 1.7E+00                                       | AW953881.1               | EST_HUMAN                     | EST305751 IMAGE resequences, MAGC Homo sapiens cDNA   |
| 10857                  | 23890                 | 37609             | 0.47                 | 1.7E+00                                       | BE878260.1               | EST_HUMAN                     | 601488170F1 NIH_MGC_69 Homo sapiens cDNA clone IMAGE:3890464 5'   |
| 10857                  | 23890                 | 37610             | 0.47                 | 1.7E+00                                       | BE878260.1               | EST_HUMAN                     | 601488170F1 NIH_MGC_69 Homo sapiens cDNA clone IMAGE:3890464 5'   |
| 11898                  | 24884                 | 38582             | 1.67                 | 1.7E+00                                       | W22424.1                 | EST_HUMAN                     | 6787 Human retina cDNA Tap5089-cleaved sublibrary Homo sapiens cDNA not directional   |
| 12523                  | 25356                 | 32086             | 1.94                 | 1.7E+00                                       | AI678443.1               | EST_HUMAN                     | hs22d07.x1 NCI_CGAP_Oes4 Homo sapiens cDNA clone IMAGE:2257549 3' similar to contains MSR1.11   |
| 2090                   | 16230                 | 28332             | 18.53                | 1.6E+00                                       | AF198338.1               | NT                            | MSR1 repetitive element   |
| 2101                   | 16241                 | 28362             | 4.14                 | 1.6E+00                                       | AF077374.1               | NT                            | Homo sapiens lens epithelium-derived growth factor gene, alternatively spliced, complete cds  |
| 2107                   | 16246                 | 28367             | 1.26                 | 1.6E+00                                       | Y11344.1                 | NT                            | Homo sapiens small proline-rich protein (SPRR3) gene, exons 1, 2, and 3 and complete cds  |
| 2357                   | 16488                 |                   | 0.97                 | 1.6E+00                                       | X98373.1                 | NT                            | Mus musculus ST8GALNACIII gene, exon 2  |
| 3026                   | 16202                 | 28225             | 1.22                 | 1.6E+00                                       | W59426.1                 | EST_HUMAN                     | Brn3ap gene encoding endo-polygalacturonase   |
|                        |                       |                   |                      |   |                          |                               | zid25f01.1 Sources_fetal_NIH-H19W Homo sapiens cDNA clone IMAGE:341688 5' similar to  |
|                        |                       |                   |                      |   |                          |                               | gb-D28805 N-ACETYL LAGOSAMINE SYNTHASE (HUMAN);   |

Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 3857                   | 17017                 |                   | 1.06                 | 1.0E+00                                       | AB028898.1               | NT                            | Homo sapiens DNA, DLEC1 to ORCTL4 gene region, section 1/2 (DLEC1, ORCTL3, ORCTL4 genes, complete cds) |
| 4142                   | 17204                 |                   | 6.05                 | 1.0E+00                                       | BF670077.1               | EST_HUMAN                     | 802188035T1 NIH_MGC_45 Homo sapiens cDNA clone IMAGE:4310561 3'  |
| 4472                   | 17612                 | 30590             | 1.25                 | 1.0E+00                                       | AF153827.1               | NT                            | Homo sapiens proliferation-associated SNF2-like protein (SMARCA6) mRNA, complete cds                   |
| 4472                   | 17612                 | 30591             | 1.25                 | 1.0E+00                                       | AF153827.1               | NT                            | Homo sapiens proliferation-associated SNF2-like protein (SMARCA6) mRNA, complete cds                   |
| 5184                   | 18306                 | 31270             | 0.59                 | 1.0E+00                                       | AF127897.1               | NT                            | Salmonella typhimurium diffractory receptor (SBO27) gene, partial cds                                  |
| 5194                   | 18316                 | 31284             | 2.83                 | 1.0E+00                                       | Y11344.1                 | NT                            | Mus musculus ST6GalNAcII gene, exon 2  |
| 5194                   | 18316                 | 31285             | 2.83                 | 1.0E+00                                       | Y11344.1                 | NT                            | Mus musculus ST6GalNAcII gene, exon 2  |
| 5948                   | 18134                 | 32447             | 2.38                 | 1.0E+00                                       | LO4808.1                 | NT                            | Brachydanio rerio MHC class II DA-beta-2701 gene, 3' end   |
| 6035                   | 18218                 | 32540             | 0.78                 | 1.0E+00                                       | AF006691.1               | NT                            | Homo sapiens transglutaminase type I (Tgase1) gene, promoter region                                    |
| 6589                   | 19759                 | 33147             | 0.91                 | 1.0E+00                                       | BF380703.1               | EST_HUMAN                     | IL2-UT0073-090900-145-E02 UT0073 Homo sapiens cDNA   |
| 6849                   | 20002                 | 33411             | 1.05                 | 1.0E+00                                       | AW284881.1               | EST_HUMAN                     | UH-B12-alt-b-04-0-JLs1 NCL CGAP Sub4 Homo sapiens cDNA clone IMAGE:2727511 3'                          |
| 7394                   | 20472                 | 33898             | 2.37                 | 1.0E+00                                       | BE697267.1               | EST_HUMAN                     | RCO-CT0415-200700-032-c10 CT0415 Homo sapiens cDNA   |
| 8219                   | 21301                 |                   | 1.3                  | 1.0E+00                                       | Q46378                   | SWISSPROT                     | VRULENIN FACTOR MVN HOMOLOG  |
| 8574                   | 21655                 | 35186             | 3.3                  | 1.0E+00                                       | AJ297131.1               | NT                            | Mus musculus SIL, MAP_17, CYP_a, SCL & CYP_b genes   |
| 9101                   | 22180                 | 36724             | 1.07                 | 1.0E+00                                       | 11437222                 | NT                            | Homo sapiens hypothetical protein PRO0871 (PRO0871), mRNA  |
| 9101                   | 22180                 | 36725             | 1.07                 | 1.0E+00                                       | 11437222                 | NT                            | Homo sapiens hypothetical protein PRO0871 (PRO0871), mRNA  |
| 9272                   | 22348                 | 36898             | 0.49                 | 1.0E+00                                       | BE388331.1               | EST_HUMAN                     | 801283925F1 NIH_MGC_44 Homo sapiens cDNA clone IMAGE:3605647 5'  |
| 9659                   | 25957                 | 34615             | 1.05                 | 1.0E+00                                       | X52046.1                 | NT                            | M.musculus COL3A1 gene for collagen alpha-1  |
| 9659                   | 25957                 | 34616             | 1.05                 | 1.0E+00                                       | X52046.1                 | NT                            | M.musculus COL3A1 gene for collagen alpha-1  |
| 9786                   | 26326                 |                   | 0.7                  | 1.0E+00                                       | AF043403.1               | NT                            | Thermotoga maritima ethanolic D-xylose-binding protein (xyf) gene, complete cds                        |
| 9935                   | 22974                 | 36566             | 1.49                 | 1.0E+00                                       | T41280.1                 | EST_HUMAN                     | ph868_191TV Outward AU-paired hncDNA library Homo sapiens cDNA clone ph868_191TV                       |
| 10388                  | 23423                 | 37029             | 1.09                 | 1.0E+00                                       | AW835844.1               | EST_HUMAN                     | QV4-LT0016-090200-100-d07 LT0016 Homo sapiens cDNA   |
| 10388                  | 23423                 | 37030             | 1.09                 | 1.0E+00                                       | AW835844.1               | EST_HUMAN                     | QV4-LT0016-090200-100-d07 LT0016 Homo sapiens cDNA   |
| 10552                  | 23987                 | 37195             | 0.52                 | 1.0E+00                                       | AF037352.1               | NT                            | Mus musculus T cell receptor gamma locus, TCR gamma 1 and gamma 3 gene clusters                        |
| 11010                  | 24089                 | 37728             | 1.77                 | 1.0E+00                                       | P64817                   | SWISSPROT                     | CAPSID PROTEIN P40 [CONTAINS: ASSEMBLIN (PROTEASE); CAPSID ASSEMBLY PROTEIN]                           |
| 11082                  | 18218                 | 32540             | 4.8                  | 1.0E+00                                       | AF005631.1               | NT                            | Homo sapiens transglutaminase type I (Tgase1) gene, promoter region                                    |
| 12006                  | 24691                 | 38695             | 3.68                 | 1.0E+00                                       | AF104313.1               | NT                            | Homo sapiens unknown mRNA  |
| 33                     | 13271                 | 28275             | 2.95                 | 1.0E+00                                       | U63449.1                 | NT                            | Rattus norvegicus Jun dimerization protein 2 (Jdp-2) mRNA, complete cds                                |
| 241                    | 13463                 | 28492             | 2.44                 | 1.0E+00                                       | AEO02201.2               | NT                            | Chlamydia pneumoniae AP389, section 32 of 94 of the complete genome                                    |
| 636                    | 13821                 |                   | 1.81                 | 1.0E+00                                       | 6752961                  | NT                            | Mus musculus a disintegrin and metalloproteinase domain (ADAM) 15 (metargidin) (Adam15), mRNA          |
| 2481                   | 15808                 | 28732             | 1.66                 | 1.0E+00                                       | AJ1131402.1              | NT                            | Potato Virus A RNA complete genome, isolate U  |
| 2584                   | 16709                 | 28828             | 2.02                 | 1.0E+00                                       | 6678350                  | NT                            | Mus musculus T-cell lymphoma invasion and metastasis 1 (Tiam1), mRNA                                   |

Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit<br>Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|-----------------------------|-------------------------------|---|
| 3208                   | 16608                 | 28732             | 1.75                 | 1.5E+00                                       | AJ131402.1                  | NT                            | Potato virus A RNA complete genome, isolate U   |
| 3482                   | 16820                 | 28849             | 0.77                 | 1.5E+00                                       | AE001946.1                  | NT                            | Deinococcus radiodurans R1 section 82 of 229 of the complete chromosome 1   |
| 5846                   | 18036                 | 32942             | 0.71                 | 1.5E+00                                       | AI655301.1                  | EST_HUMAN                     | U12F10.X1 NCL_CGAP_G08 Homo sapiens cDNA clone IMAGE:2240587 3' similar to TR:O00237 O00237 HKF-1.1                                     |
| 5846                   | 18036                 | 32943             | 0.71                 | 1.5E+00                                       | AI655301.1                  | EST_HUMAN                     | U12F10.X1 NCL_CGAP_G08 Homo sapiens cDNA clone IMAGE:2240587 3' similar to TR:O00237 O00237 HKF-1.1                                     |
| 6536                   | 19889                 | 33072             | 2.43                 | 1.5E+00                                       | R17879.1                    | EST_HUMAN                     | Y010e02.r1 Soares Infant brain 1N1B Homo sapiens cDNA clone IMAGE:31683 5'  |
| 7278                   | 20361                 |                   | 1.63                 | 1.5E+00                                       | BE785356.1                  | EST_HUMAN                     | 601478745F1 NIH_MGC_88 Homo sapiens cDNA clone IMAGE:3881555 5'   |
| 7311                   | 20393                 | 33853             | 16.24                | 1.5E+00                                       | P47179                      | SWISSPROT                     | HYPOTHETICAL 118.4 KD PROTEIN IN BAT2-DAL5 INTERGENIC REGION PRECURSOR  |
| 7311                   | 20393                 | 33854             | 16.24                | 1.5E+00                                       | P47179                      | SWISSPROT                     | HYPOTHETICAL 118.4 KD PROTEIN IN BAT2-DAL5 INTERGENIC REGION PRECURSOR  |
| 7500                   | 20575                 | 34048             | 0.61                 | 1.5E+00                                       | AA889259.1                  | EST_HUMAN                     | ak20f10.s1 Soares testis NHT Homo sapiens cDNA clone IMAGE:1407115 3'   |
| 7768                   | 20826                 | 34317             | 0.77                 | 1.5E+00                                       | AI003254.1                  | EST_HUMAN                     | ar07b11.s1 Strategene echino brain S11 Homo sapiens cDNA clone IMAGE:1684893 3' similar to gds:595936 SEROTRANSFERRIN PRECURSOR (HUMAN) |
| 8313                   | 21395                 | 34820             | 0.9                  | 1.5E+00                                       | BE867446.1                  | EST_HUMAN                     | 601509586F1 NIH_MGC_71 Homo sapiens cDNA clone IMAGE:3911181 5'   |
| 8397                   | 21448                 | 34971             | 0.5                  | 1.5E+00                                       | AB040887.1                  | NT                            | Homo sapiens mRNA for KIAA1454 protein, partial cds   |
| 8846                   | 21825                 | 35463             | 1.03                 | 1.5E+00                                       | K02138.1                    | NT                            | Mouse germline IgM chain gene, mu-delta region  |
| 8218                   | 22296                 |                   | 0.48                 | 1.5E+00                                       | AB0368516.1                 | NT                            | Homo sapiens hGP1b alpha gene for platelet glycoprotein Ib alpha, complete cds  |
| 9334                   | 22410                 | 35863             | 0.51                 | 1.5E+00                                       | BF217818.1                  | EST_HUMAN                     | 601882662F1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:4096135 5'   |
| 9684                   | 22733                 | 36303             | 0.85                 | 1.5E+00                                       | R81828.1                    | EST_HUMAN                     | Y03h01.r1 Soares placenta NK2HP Homo sapiens cDNA clone IMAGE:147687 5'   |
| 9835                   | 22876                 | 36458             | 1.5                  | 1.5E+00                                       | AW375687.1                  | EST_HUMAN                     | QV3-CT0162-261089-008-009 CT0162 Homo sapiens cDNA  |
| 10064                  | 23102                 | 36705             | 8.49                 | 1.5E+00                                       | BF378754.1                  | EST_HUMAN                     | RC0-TN0078-150800-034-g08 TN0078 Homo sapiens cDNA  |
| 10258                  | 23293                 |                   | 1.86                 | 1.5E+00                                       | BF337944.1                  | EST_HUMAN                     | 602035771F1 NCL_CGAP_Bm84 Homo sapiens cDNA clone IMAGE:4183865 5'  |
| 10369                  | 23434                 | 37040             | 2.26                 | 1.5E+00                                       | AA017689.1                  | EST_HUMAN                     | zs85g06.r1 Soares retina N2b-4HR Homo sapiens cDNA clone IMAGE:361308 5'  |
| 10369                  | 23434                 | 37041             | 2.26                 | 1.5E+00                                       | AA017689.1                  | EST_HUMAN                     | zs85g06.r1 Soares retina N2b-4HR Homo sapiens cDNA clone IMAGE:361308 5'  |
| 11684                  | 24683                 | 38373             | 3.4                  | 1.5E+00                                       | AL134197.1                  | EST_HUMAN                     | DKFZp547P243_s1 547 (synonym: hbf1) Homo sapiens cDNA clone DKFZp547P243 3'   |
| 11684                  | 24823                 |                   | 7.68                 | 1.5E+00                                       | X07380.1                    | NT                            | Maize mitochondrial RNA-Ser gene and tRNA-Phe pseudogene  |
| 11929                  | 24915                 | 38817             | 1.39                 | 1.5E+00                                       | AI400798.1                  | EST_HUMAN                     | tg94d08.x1 NCL_CGAP_G11.1 Homo sapiens cDNA clone IMAGE:2116433 3'  |
| 11929                  | 24916                 | 38818             | 1.39                 | 1.5E+00                                       | AI400798.1                  | EST_HUMAN                     | tg94d08.x1 NCL_CGAP_G11.1 Homo sapiens cDNA clone IMAGE:2116433 3'  |
| 12515                  | 26066                 | 31682             | 1.81                 | 1.5E+00                                       | D63460.1                    | NT                            | Human mRNA for KIAA0146 gene, partial cds   |
| 12705                  | 25508                 |                   | 3.82                 | 1.5E+00                                       | AL445065.1                  | NT                            | Thermoplasma acidophilum complete genomes segment 3/6   |
| 12888                  | 25589                 |                   | 2.17                 | 1.5E+00                                       | 6978482                     | NT                            | Rattus norvegicus 5'-Lipoxygenase (Alox5), mRNA   |
| 13220                  | 25704                 | 31888             | 1.31                 | 1.5E+00                                       | BF223035.1                  | EST_HUMAN                     | 7q82d08.x1 NCL_CGAP_Lu24 Homo sapiens cDNA clone IMAGE: 3'  |
| 30                     | 13288                 | 26271             | 2.27                 | 1.4E+00                                       | 7661685                     | NT                            | Homo sapiens DKFZP588M0122 protein (DKFZP588M0122), mRNA  |
| 30                     | 13288                 | 26272             | 2.27                 | 1.4E+00                                       | 7661685                     | NT                            | Homo sapiens DKFZP588M0122 protein (DKFZP588M0122), mRNA  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 2351                   | 15482                 |                   | 0.97                 | 1.4E+00                                       | AF053357.1               | NT                            | Helicobacter pylori glutamine synthetase (glmA) gene, complete cds   |
| 2411                   | 15541                 |                   | 9.39                 | 1.4E+00                                       | U67922.1                 | NT                            | Ovis aries prion protein gene, complete cds  |
| 2734                   | 15851                 | 28954             | 1.7                  | 1.4E+00                                       | X74463.1                 | NT                            | Human papillomavirus type 7 genomic DNA  |
| 2833                   | 15947                 | 28055             | 3.22                 | 1.4E+00                                       | AF064594.2               | NT                            | Fugu rubripes neurofibromatosis type 1 (NF1), A-kinase anchor protein (AKAP84), BAW protein (BAW), and WSB1 protein (WSB1) genes, complete cds |
| 2833                   | 15947                 | 29056             | 3.22                 | 1.4E+00                                       | AF064594.2               | NT                            | Fugu rubripes neurofibromatosis type 1 (NF1), A-kinase anchor protein (AKAP84), BAW protein (BAW), and WSB1 protein (WSB1) genes, complete cds |
| 3414                   | 16553                 |                   | 0.79                 | 1.4E+00                                       | 6483733                  | NT                            | Homo sapiens Mac4 homolog (MAD4) mRNA  |
| 4370                   | 17513                 | 30493             | 1.13                 | 1.4E+00                                       | AW900455.1               | EST_HUMAN                     | CMD-NN1005-140300-286-108 NN1005 Homo sapiens cDNA   |
| 4370                   | 17513                 | 30494             | 1.13                 | 1.4E+00                                       | AW900455.1               | EST_HUMAN                     | CMD-NN1005-140300-286-108 NN1005 Homo sapiens cDNA   |
| 4708                   | 17843                 |                   | 1.51                 | 1.4E+00                                       | BF681547.1               | EST_HUMAN                     | 602156887F1 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:4297566 5'  |
| 5317                   | 18434                 |                   | 0.94                 | 1.4E+00                                       | Q07869                   | SWISSPROT                     | PEROXISOME PROLIFERATOR ACTIVATED RECEPTOR ALPHA (PPAR-ALPHA)  |
| 5488                   | 18687                 | 31705             | 1.73                 | 1.4E+00                                       | AW064978.1               | EST_HUMAN                     | w645g07.x1 NCL_CGAP_Pant1 Homo sapiens cDNA clone IMAGE:2510480 3'   |
| 5945                   | 18839                 |                   | 6.04                 | 1.4E+00                                       | AB032983.1               | NT                            | Homo sapiens mRNA for KIAA1167 protein, partial cds  |
| 6408                   | 19578                 | 32839             | 3.07                 | 1.4E+00                                       | Q13472                   | SWISSPROT                     | DNA TOPOISOMERASE III ALPHA  |
| 6424                   | 26214                 |                   | 3.93                 | 1.4E+00                                       | AB020712.1               | NT                            | Homo sapiens mRNA for KIAA0805 protein, complete cds   |
| 6542                   | 19705                 | 33078             | 2.8                  | 1.4E+00                                       | Q82777                   | SWISSPROT                     | SYNAPSIN II  |
| 6542                   | 19705                 | 33079             | 2.8                  | 1.4E+00                                       | Q82777                   | SWISSPROT                     | SYNAPSIN II  |
| 6861                   | 20189                 | 33614             | 0.8                  | 1.4E+00                                       | AW693057.1               | EST_HUMAN                     | CMD-NN0008-300300-132-bt12 NN0008 Homo sapiens cDNA  |
| 7438                   | 20515                 | 33988             | 1.99                 | 1.4E+00                                       | AJ133268.1               | NT                            | Homo sapiens cavedin-1/-2 locus, Contig1, D7S622, genes CAV2 (exons 1, 2a, and 2b), CAV1 (exons 1 and 2)                                       |
| 7454                   | 20631                 | 34005             | 1.14                 | 1.4E+00                                       | AW467780.1               | EST_HUMAN                     | haz3105.X1 NCL_CGAP_CML1 Homo sapiens cDNA clone IMAGE:2918873 3' similar to contains Alu repetitive element                                   |
| 7514                   | 20588                 | 34062             | 0.7                  | 1.4E+00                                       | P55268                   | SWISSPROT                     | LAMININ BETA-2 CHAIN PRECURSOR (S-LAMININ)   |
| 7514                   | 20588                 | 34063             | 0.7                  | 1.4E+00                                       | P55268                   | SWISSPROT                     | LAMININ BETA-2 CHAIN PRECURSOR (S-LAMININ)   |
| 8530                   | 21611                 |                   | 0.72                 | 1.4E+00                                       | P07693                   | SWISSPROT                     | GLUCOAMYLASE PRECURSOR (GLUCAN 1,4-ALPHA-GLUCOSIDASE) (1,4-ALPHA-D-GLUCAN GLUCOHYDROLASE)  |
| 8894                   | 22073                 |                   | 5.4                  | 1.4E+00                                       | AJ271735.1               | NT                            | Homo sapiens Xq pseudosubterminal region, segment 1/2  |
| 9295                   | 22371                 | 35620             | 1.65                 | 1.4E+00                                       | R20459.1                 | EST_HUMAN                     | yg3312.1 Scores infant brain 1N1B Homo sapiens cDNA clone IMAGE:34345 5'   |
| 9398                   | 22472                 | 36038             | 3.83                 | 1.4E+00                                       | BE084867.1               | EST_HUMAN                     | RC1-BT0319-301299-012-105 BT0313 Homo sapiens cDNA   |
| 9432                   | 22506                 | 36072             | 0.65                 | 1.4E+00                                       | AF134844.1               | NT                            | Sceloporus undulatus ornithine transcarbamylase (OTC) mRNA, complete cds   |
| 10412                  | 23447                 | 37052             | 0.86                 | 1.4E+00                                       | BF675545.1               | EST_HUMAN                     | 602133135F1 NIH_MGC_81 Homo sapiens cDNA clone IMAGE:4288197 5'  |
| 10457                  | 23492                 | 37102             | 0.88                 | 1.4E+00                                       | BE145374.1               | EST_HUMAN                     | IL5-HT0198-291089-008 C04 HT0198 Homo sapiens cDNA   |
| 10457                  | 23492                 | 37103             | 0.88                 | 1.4E+00                                       | BE145374.1               | EST_HUMAN                     | IL5-HT0198-291089-008 C04 HT0198 Homo sapiens cDNA   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 10744                  | 23777                 | 37390             | 0.96                 | 1.4E+00                                       | D03441.1                 | NT                            | Pandorina cokerianae chloroplast rbcL gene for ribulose biphosphate carboxylase, partial cds  |
| 10744                  | 23777                 | 37391             | 0.96                 | 1.4E+00                                       | D03441.1                 | NT                            | Pandorina cokerianae chloroplast rbcL gene for ribulose biphosphate carboxylase, partial cds  |
| 10852                  | 23885                 | 37504             | 1.15                 | 1.4E+00                                       | Q07283                   | SWISSPROT                     | TRICHOHYALIN  |
| 11489                  | 24557                 | 38232             | 4.52                 | 1.4E+00                                       | AB000682.1               | NT                            | Homo sapiens APECE2 mRNA for AIRE-1; complete cds   |
| 11681                  | 24689                 | 38379             | 3.46                 | 1.4E+00                                       | BE962107.2               | EST_HUMAN                     | 801055184R1 NIH_MGC_65 Homo sapiens cDNA clone IMAGE:3945905 3'   |
| 11681                  | 24689                 | 38380             | 3.46                 | 1.4E+00                                       | BE962107.2               | EST_HUMAN                     | 801655184R1 NIH_MGC_65 Homo sapiens cDNA clone IMAGE:3945905 3'   |
| 11711                  | 24751                 | 38444             | 2.3                  | 1.4E+00                                       | U30790.1                 | NT                            | Pneumocystis carinii f. sp. ratii guanine nucleotide binding protein alpha subunit (pog1) gene, complete cds  |
| 11711                  | 24751                 | 38445             | 2.3                  | 1.4E+00                                       | U30790.1                 | NT                            | Pneumocystis carinii f. sp. ratii guanine nucleotide binding protein alpha subunit (pog1) gene, complete cds  |
| 12359                  | 26012                 |                   | 2.01                 | 1.4E+00                                       | AL161500.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 12   |
| 12785                  | 26204                 |                   | 2.99                 | 1.4E+00                                       | 11545836                 | NT                            | Homo sapiens cutaneous T-cell lymphoma tumor antigen s870-2 (SE70-2), mRNA  |
| 594                    | 13776                 |                   | 1.98                 | 1.3E+00                                       | Z73840.1                 | NT                            | M. musculus gene encoding 4-Dihydroxyethyl-bisphosphate dehydrogenase   |
| 825                    | 14100                 | 27164             | 2.79                 | 1.3E+00                                       | AJ271182.1               | NT                            | Cantharellus sp. partial 26S rRNA gene, isolate Tibet   |
| 1153                   | 14317                 |                   | 23.81                | 1.3E+00                                       | Y19213.1                 | NT                            | Homo sapiens putative psfH-HbA pseudogene for hair keratin, exons 2 to 7  |
| 1325                   | 14482                 | 27649             | 14.36                | 1.3E+00                                       | 4507998                  | NT                            | Homo sapiens zinc finger protein 157 (HZF22) (ZNF157) mRNA  |
| 1325                   | 14482                 | 27650             | 14.36                | 1.3E+00                                       | 4507998                  | NT                            | Homo sapiens zinc finger protein 167 (HZF22) (ZNF167) mRNA  |
| 1387                   | 14642                 |                   | 0.98                 | 1.3E+00                                       | U61730.2                 | NT                            | Cdx lacryme-jabi dihydrodipicolinate synthase (dipa) gene, complete cds   |
| 1641                   | 14783                 |                   | 2.35                 | 1.3E+00                                       | AE002338.2               | NT                            | Chlamydia muridarum, section 68 of 85 of the complete genome  |
| 2316                   | 15448                 |                   | 2.38                 | 1.3E+00                                       | AB030447.1               | NT                            | Cyprinus carpio MRPb and MASPb genes for marnose-binding lectin-associated serine protease (MASP) and MASP-related protein, complete cds  |
| 2815                   | 15739                 |                   | 1.81                 | 1.3E+00                                       | BE960735.2               | EST_HUMAN                     | 801061233R1 NIH_MGC_72 Homo sapiens cDNA clone IMAGE:3915845 3'   |
| 3005                   | 16180                 | 28201             | 0.96                 | 1.3E+00                                       | 6756621                  | NT                            | Mus musculus alpha-spectrin 1, erythroid (Spn1), mRNA   |
| 3886                   | 16849                 | 28857             | 1.14                 | 1.3E+00                                       | AF016494.1               | NT                            | Fugu rubripes gamma-aminobutyric acid receptor beta subunit gene, partial cds; 55kd erythrocyte membrane protein (P65), synaptic vesicle-associated integral membrane protein (VAMP-1), procollagen C-proteinase enhancer protein (PCOLCE) genes, complete c> |
| 5631                   | 18825                 | 31900             | 1                    | 1.3E+00                                       | P19732                   | SWISSPROT                     | PHENOL HYDROXYLASE P3 PROTEIN (PHENOL 2-MONOOXYGENASE P3 COMPONENT)   |
| 5927                   | 19017                 | 32322             | 0.58                 | 1.3E+00                                       | M27138.1                 | NT                            | Human estradiol 17 beta-dehydrogenase gene, complete cds  |
| 6142                   | 19320                 | 32682             | 7.56                 | 1.3E+00                                       | AW362834.1               | EST_HUMAN                     | PMD-CT0289-261198-004-08 CT0289 Homo sapiens cDNA   |
| 6142                   | 19320                 | 32683             | 7.56                 | 1.3E+00                                       | AW362834.1               | EST_HUMAN                     | PMD-CT0289-261198-004-08 CT0289 Homo sapiens cDNA   |
| 6547                   | 19709                 | 33065             | 1.14                 | 1.3E+00                                       | M59498.1                 | NT                            | D.melanogaster no-on-transient A gene product, complete cds   |
| 6890                   | 20042                 |                   | 0.71                 | 1.3E+00                                       | Q00166                   | SWISSPROT                     | HYPOTHETICAL GENE 64 PROTEIN  |
| 6928                   | 20243                 |                   | 0.58                 | 1.3E+00                                       | P46940                   | SWISSPROT                     | SPORE GERMINATION PROTEIN KB  |
| 6978                   | 20266                 | 33634             | 1.04                 | 1.3E+00                                       | M13918.2                 | NT                            | Homo sapiens fibronectin receptor alpha-subunit precursor (ITGA5) mRNA, partial cds   |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 7092                   | 20186                 | 33610             | 1.16                 | 1.3E+00                                       | BE538819.1               | EST_HUMAN                     | 601061420F1 NIH_MGC_10 Homo sapiens cDNA clone IMAGE:3447885 5'   |
| 7249                   | 20332                 | 33778             | 0.98                 | 1.3E+00                                       | BE243671.1               | EST_HUMAN                     | TCBAP1D0959 Pediatric pre-B cell acute lymphoblastic leukemia Baylor-HGSC project=TCBAP Homo sapiens cDNA clone TCBAP0959 |
| 7616                   | 20686                 | 34162             | 0.78                 | 1.3E+00                                       | P24540                   | SWISSPROT                     | ACYLPHOSPHATASE, ORGAN-COMMON TYPE ISOZYMES A AND B (ACYLPHOSPHATE PHOSPHOHYDROLASE)                                      |
| 8494                   | 21575                 | 35112             | 1.78                 | 1.3E+00                                       | AJ003912.1               | NT                            | Sus scrofa pip gene   |
| 8642                   | 21722                 | 36269             | 2.28                 | 1.3E+00                                       | BE588378.2               | EST_HUMAN                     | 601657145R1 NIH_MGC_67 Homo sapiens cDNA clone IMAGE:3866185 3'   |
| 8758                   | 21837                 | 36378             | 1.05                 | 1.3E+00                                       | BE974280.1               | EST_HUMAN                     | 601680250R2 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:3960832 3'   |
| 8807                   | 21888                 |                   | 1.87                 | 1.3E+00                                       | 8910247                  | NT                            | Homo sapiens GL004 protein (GL004), mRNA  |
| 8890                   | 22069                 | 36509             | 0.88                 | 1.3E+00                                       | A827628.1                | EST_HUMAN                     | wc85a07.x1 NCI_CGAP_Kid11 Homo sapiens cDNA clone IMAGE:2482100 3'  |
| 8947                   | 22423                 | 36976             | 0.51                 | 1.3E+00                                       | H42881.1                 | EST_HUMAN                     | y068c03.s1 Soares breast 3NH-Bst Homo sapiens cDNA clone IMAGE:183078 3'  |
| 8947                   | 22423                 | 36977             | 0.51                 | 1.3E+00                                       | H42881.1                 | EST_HUMAN                     | y068c03.s1 Soares breast 3NH-Bst Homo sapiens cDNA clone IMAGE:183078 3'  |
| 9715                   | 22760                 |                   | 5.02                 | 1.3E+00                                       | AF042084.1               | NT                            | Homo sapiens heparan glucosaminyl N-desacetylaseN-sulfotransferase-2 gene, complete cds                                   |
| 9724                   | 22789                 | 36359             | 2.47                 | 1.3E+00                                       | X72019.1                 | NT                            | S. alba pfr-1 mRNA for photolyase   |
| 9724                   | 22789                 | 36360             | 2.47                 | 1.3E+00                                       | X72019.1                 | NT                            | S. alba pfr-1 mRNA for photolyase   |
| 9823                   | 22863                 | 36444             | 1.21                 | 1.3E+00                                       | AF059250.1               | NT                            | Homo sapiens lipovigenase (ALOX12B) mRNA, complete cds  |
| 9847                   | 22887                 |                   | 0.47                 | 1.3E+00                                       | AW024380.1               | EST_HUMAN                     | w03103.x1 NCI_CGAP_Kid3 Homo sapiens cDNA clone IMAGE:2528477 3' similar to gb:M31522                                     |
| 9871                   | 22911                 | 36496             | 1.65                 | 1.3E+00                                       | O00764                   | SWISSPROT                     | TRANSCRIPTION FACTOR ITF-1 (HUMAN);   |
| 9952                   | 22991                 | 36584             | 1.21                 | 1.3E+00                                       | A827628.1                | EST_HUMAN                     | LYSOSOMAL ALPHA-MANNOSIDASE PRECURSOR (MANNOSIDASE, ALPHA B) (LYSOSOMAL ACID ALPHA-MANNOSIDASE) (LAMMAN)                  |
| 10031                  | 23059                 | 36668             | 0.88                 | 1.3E+00                                       | AJ223082.1               | NT                            | w059a07.x1 NCI_CGAP_Kid11 Homo sapiens cDNA clone IMAGE:2482100 3'  |
| 10031                  | 23059                 | 36669             | 0.88                 | 1.3E+00                                       | AJ223082.1               | NT                            | Lactobacillus lactis cremoris NCDO-1191 chromosomal inversion junction DNA  |
| 10070                  | 23108                 | 36711             | 3.93                 | 1.3E+00                                       | BE588378.2               | EST_HUMAN                     | Lactobacillus lactis cremoris NCDO-1191 chromosomal inversion junction DNA  |
| 10130                  | 23168                 |                   | 0.57                 | 1.3E+00                                       | AJ555944.1               | EST_HUMAN                     | 601657145R1 NIH_MGC_67 Homo sapiens cDNA clone IMAGE:3866185 3'   |
| 10353                  | 23388                 | 36906             | 0.5                  | 1.3E+00                                       | AF061251.1               | NT                            | 1q77a12.x1 NCI_CGAP_UH1 Homo sapiens cDNA clone IMAGE:2214814 3' similar to gb:X14723                                     |
| 10353                  | 23388                 | 36907             | 0.5                  | 1.3E+00                                       | AF061251.1               | NT                            | GLJUSTERIN PRECURSOR (HUMAN);   |
| 10418                  | 23453                 | 37058             | 1.68                 | 1.3E+00                                       | AE004392.1               | NT                            | Escherichia coli serotype O157:H7 O antigen gene cluster  |
| 10435                  | 23470                 | 37078             | 1.59                 | 1.3E+00                                       | M228853.1                | NT                            | Escherichia coli serotype O157:H7 O antigen gene cluster  |
| 10811                  | 23844                 |                   | 0.99                 | 1.3E+00                                       | AL163302.2               | NT                            | Vibrio cholerae chromosome II, section 49 of 53 of the complete chromosome  |
| 10838                  | 23871                 | 37463             | 0.47                 | 1.3E+00                                       | A890848.1                | EST_HUMAN                     | Campylobacter jejuni kenamorph phosphotransferase (aphA-7) gene, complete cds   |
| 10851                  | 23884                 |                   | 0.53                 | 1.3E+00                                       | 8923837                  | NT                            | Homo sapiens chromosome 21 segment H821C102   |
|                        |                       |                   |                      |   |                          |                               | w053a10.x1 NCI_CGAP_G08 Homo sapiens cDNA clone IMAGE:2498822 3' similar to SW:TR08_HUMAN                                 |
|                        |                       |                   |                      |   |                          |                               | Q16881 THIOREDOXIN REDUCTASE;   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens hypothetical protein FLJ20707 (FLJ20707), mRNA   |

Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO.: | Exon<br>SEQ ID<br>NO.: | ORF SEQ<br>ID NO.: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|-------------------------|------------------------|--------------------|----------------------|---|--------------------------|-------------------------------|--|
| 10854                   | 23887                  | 37506              | 0.46                 | 1.3E+00                                       | 7849158                  | NT                            | Mus musculus vesicle-associated membrane protein 4 (Vamp4), mRNA   |
| 10854                   | 23887                  | 37507              | 0.46                 | 1.3E+00                                       | 7849159                  | NT                            | Mus musculus vesicle-associated membrane protein 4 (Vamp4), mRNA   |
| 10861                   | 23894                  | 37516              | 0.45                 | 1.3E+00                                       | H42881.1                 | EST_HUMAN                     | yo88c03.s1 Soares breast 3Nb1-Bst Homo sapiens cDNA clone IMAGE:183076 3'                                |
| 10861                   | 23894                  | 37516              | 0.45                 | 1.3E+00                                       | H42881.1                 | EST_HUMAN                     | yo88c03.s1 Soares breast 3Nb1-Bst Homo sapiens cDNA clone IMAGE:183076 3'                                |
| 10832                   | 24014                  |                    | 4.05                 | 1.3E+00                                       | Q14117                   | SWISSPROT                     | DIHYDROPYRIMIDINASE (DHPASE) (HYDANTOINASE) (DHP)  |
| 11145                   | 24217                  | 37844              | 2.4                  | 1.3E+00                                       | P25289                   | SWISSPROT                     | MRNA 3'-END PROCESSING PROTEIN RNA15   |
| 11169                   | 24240                  | 37872              | 1.77                 | 1.3E+00                                       | Z16882.2                 | NT                            | Mus musculus desmin gene   |
| 11619                   | 24670                  |                    | 1.43                 | 1.3E+00                                       | AW274791.1               | EST_HUMAN                     | xp08ac03.x1 NCI_CGAP_H140 Homo sapiens cDNA clone IMAGE:2739888 3'                                       |
| 11831                   | 24820                  | 38511              | 2.73                 | 1.3E+00                                       | D42042.1                 | NT                            | Human mRNA for KIAA0085 gene, partial cds  |
| 11823                   | 24809                  | 38610              | 2.28                 | 1.3E+00                                       | Z68882.1                 | NT                            | Bacillus subtilis genomic DNA 23.9kb fragment  |
| 11994                   | 24979                  |                    | 1.35                 | 1.3E+00                                       | L31891.1                 | NT                            | Arabidopsis thaliana 3-ketoadyl-acyl carrier protein synthase III (KAS III) mRNA, complete cds           |
| 12604                   | 26347                  |                    | 3.81                 | 1.3E+00                                       | AF187873.1               | NT                            | Carica papaya inwardly-rectifying potassium channel Kir2.2 (KCNJ12) gene, complete cds                   |
| 12698                   | 26485                  | 32022              | 2.76                 | 1.3E+00                                       | BF348043.1               | EST_HUMAN                     | 80223185F1 NCI_CGAP_Bn67 Homo sapiens cDNA clone IMAGE:4158452 5'  |
| 12707                   | 26589                  |                    | 1.98                 | 1.3E+00                                       | P33464                   | SWISSPROT                     | E1 GLYCOPROTEIN PRECURSOR (MATRIX GLYCOPROTEIN) (MEMBRANE GLYCOPROTEIN)                                  |
| 12822                   | 26549                  |                    | 1.53                 | 1.3E+00                                       | AF187035.1               | NT                            | Sturmia illium cytochrome b gene, complete cds; mitochondrial gene for mitochondrial product             |
| 13200                   | 26783                  |                    | 1.34                 | 1.3E+00                                       | U38978.1                 | NT                            | Naphthalenesulfonate-degrading bacterium Bn6 2,3-dihydroxyphenyl dioxygenase (hprCII) gene, complete cds |
| 13231                   | 26981                  |                    | 1.63                 | 1.3E+00                                       | AL163283.2               | NT                            | Homo sapiens chromosome 21 segment HS21C083  |
| 687                     | 13853                  | 26881              | 8.73                 | 1.2E+00                                       | AA676246.1               | EST_HUMAN                     | z22408.s1 Soares fetal liver spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:431635 3'                     |
| 846                     | 14024                  | 27082              | 1.52                 | 1.2E+00                                       | P05228                   | SWISSPROT                     | HISTIDINE-RICH PROTEIN PRECURSOR (CLONE PHRP-III)  |
| 846                     | 14024                  | 27083              | 1.52                 | 1.2E+00                                       | P05228                   | SWISSPROT                     | HISTIDINE-RICH PROTEIN PRECURSOR (CLONE PHRP-II)   |
| 846                     | 14024                  | 27084              | 1.52                 | 1.2E+00                                       | P05228                   | SWISSPROT                     | HISTIDINE-RICH PROTEIN PRECURSOR (CLONE PHRP-II)   |
| 901                     | 14078                  |                    | 1.21                 | 1.2E+00                                       | 8824234                  | NT                            | Homo sapiens hypothetical protein PRO30777 (PRO30777), mRNA  |
| 1187                    | 14349                  | 27407              | 7.6                  | 1.2E+00                                       | AF080245.2               | NT                            | Elaeis oleifera sesquiterpene synthase mRNA, complete cds  |
| 1232                    | 14391                  | 27453              | 1.71                 | 1.2E+00                                       | AL262242.1               | NT                            | pea seed-borne mosaic virus complete genome  |
| 1232                    | 14391                  | 27454              | 1.71                 | 1.2E+00                                       | AL262242.1               | NT                            | pea seed-borne mosaic virus complete genome  |
| 2066                    | 16207                  | 28323              | 1.02                 | 1.2E+00                                       | AF140631.1               | NT                            | Homo sapiens G-protein coupled receptor 14 (GPR14) gene, complete cds                                    |
| 3179                    | 16354                  | 28359              | 1.08                 | 1.2E+00                                       | AB020681.1               | NT                            | Homo sapiens miRNA for KIAA0874 protein, partial cds   |
| 3234                    | 16408                  | 28421              | 7.01                 | 1.2E+00                                       | AL161683.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 63  |
| 3234                    | 16408                  | 28422              | 7.01                 | 1.2E+00                                       | AL161683.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 63  |
| 3358                    | 16630                  |                    | 3.57                 | 1.2E+00                                       | P54910                   | SWISSPROT                     | CONJUGAL TRANSFER PROTEIN TRBE PRECURSOR   |
| 3437                    | 16805                  | 28625              | 0.61                 | 1.2E+00                                       | AF188740.1               | NT                            | Homo sapiens LHX3 gene, intron 2   |
| 3804                    | 16864                  | 28687              | 9.16                 | 1.2E+00                                       | U75802.1                 | NT                            | Mus musculus subtilisin-like serine protease LPC (PC7) gene, exons 1 to 9, partial cds                   |
| 4084                    | 17249                  | 30254              | 1.87                 | 1.2E+00                                       | BF373570.1               | EST_HUMAN                     | MRO-FT1075-050800-203-g08_1_F10175 Homo sapiens cDNA   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO. | Exon<br>SEQ ID<br>NO. | ORF SEQ<br>ID NO. | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 4413                   | 16605                 | 28626             | 1.06                 | 1.2E+00                                       | AF188740.1               | NT                            | Homo sapiens LHX3 gene, intron 2  |
| 4594                   | 17731                 |                   | 1.91                 | 1.2E+00                                       | AB07060.1                | NT                            | Rattus rattus cardiac A23 gene, exons 1-23  |
| 4645                   | 17781                 | 30763             | 0.94                 | 1.2E+00                                       | AL161609.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 21   |
| 4682                   | 17817                 | 30805             | 2.03                 | 1.2E+00                                       | AF156495.1               | NT                            | Homo sapiens post-synaptic density 95 (DLG4) gene, complete cds   |
| 4712                   | 17847                 |                   | 6.6                  | 1.2E+00                                       | Y09200.1                 | NT                            | T. plinatum chloroplast rbcL gene, partial  |
| 5554                   | 18761                 | 31798             | 1.13                 | 1.2E+00                                       | U20760.1                 | NT                            | Human extracellular calcium-sensing receptor mRNA, complete cds   |
| 5672                   | 18868                 | 32162             | 2.34                 | 1.2E+00                                       | AW813278.1               | EST_HUMAN                     | MR3-ST0191-140200-013-c06 ST0191 Homo sapiens cDNA  |
| 5917                   | 19105                 |                   | 0.65                 | 1.2E+00                                       | X81879.1                 | NT                            | Calicivirus cDNA for orf1, orf2 and orf3  |
| 6096                   | 19180                 | 32602             | 0.77                 | 1.2E+00                                       | AF016032.1               | NT                            | Homo sapiens zinc finger protein ZNF191 (ZNF191) gene, complete cds   |
| 6260                   | 19454                 | 32802             | 2.45                 | 1.2E+00                                       | X74885.1                 | NT                            | D. hydei ay1 repeat cluster DNA, fragment D   |
| 6342                   | 19512                 | 32859             | 3.61                 | 1.2E+00                                       | BE003113.1               | EST_HUMAN                     | QY4-BN0090-270400-190-a03 BN0090 Homo sapiens cDNA  |
| 6420                   | 19589                 | 32953             | 1.28                 | 1.2E+00                                       | X89084.1                 | NT                            | C. glutamicum pta gene and ackA gene  |
| 6420                   | 19589                 | 32954             | 1.28                 | 1.2E+00                                       | X89084.1                 | NT                            | C. glutamicum pta gene and ackA gene  |
| 6463                   | 19630                 | 32991             | 36.06                | 1.2E+00                                       | AA789254.1               | EST_HUMAN                     | afB4g12.s1 Scores_testes_NIT Homo sapiens cDNA clone 1322374 3'   |
|                        |                       |                   |                      |   |                          |                               | y689b12.s1 Scores melanocyte ZNF191 Homo sapiens cDNA clone IMAGE:273598 3' similar to<br>gbIM87635j1-HUMALU472 Human carcinoma cell-derived Alu RNA transcript (rRNA); gb:304970 |
| 6598                   | 19728                 | 33105             | 0.73                 | 1.2E+00                                       | N33295.1                 | EST_HUMAN                     | CARBOXYPEPTIDASE M PRECURSOR (HUMAN);   |
| 6630                   | 19780                 | 33178             | 0.62                 | 1.2E+00                                       | P17671                   | SWISSPROT                     | ECODYSONE-INDUCIBLE PROTEIN E75-A   |
| 6634                   | 19783                 | 33182             | 1.94                 | 1.2E+00                                       | AW813278.1               | EST_HUMAN                     | MR3-ST0191-140200-013-c05 ST0191 Homo sapiens cDNA  |
| 7055                   | 20108                 | 33624             | 1.72                 | 1.2E+00                                       | AB028010.1               | NT                            | Homo sapiens mRNA for KIAA1087 protein, partial cds   |
| 7067                   | 20120                 | 33634             | 2.61                 | 1.2E+00                                       | AL002141.1               | NT                            | Mus musculus DSPP gene  |
| 7180                   | 20312                 | 33755             | 0.68                 | 1.2E+00                                       | AA167810.1               | EST_HUMAN                     | zq38105.r1 Stratagene hNT neuron (8637253) Homo sapiens cDNA clone IMAGE:632001 5' similar to<br>gbD10522 Human mRNA for 80K-L protein, complete cds. (HUMAN);                    |
| 7403                   | 20481                 |                   | 0.71                 | 1.2E+00                                       | AL271735.1               | NT                            | Homo sapiens Xq pseudautosomal region; segment 1/2  |
| 7542                   | 25847                 | 34092             | 1.85                 | 1.2E+00                                       | AV734595.1               | EST_HUMAN                     | AV734595 cDNA Homo sapiens cDNA clone cdAAFH03 5'   |
| 7828                   | 20863                 | 34386             | 2.91                 | 1.2E+00                                       | X74207.1                 | NT                            | L. lactis pyd and pyrF genes  |
| 7897                   | 21047                 | 34560             | 0.6                  | 1.2E+00                                       | BE787846.1               | EST_HUMAN                     | 601481761F1 NIH_MGC 68 Homo sapiens cDNA clone IMAGE:3884270 5'   |
| 8767                   | 21846                 | 35367             | 3.19                 | 1.2E+00                                       | AB033030.1               | NT                            | Homo sapiens mRNA for KIAA1204 protein, partial cds   |
|                        |                       |                   |                      |   |                          |                               | ALPHA,ALPHA-TREHALOSE-PHOSPHATE SYNTHASE (UDP-FORMING) 123 KD SUBUNIT<br>(TREHALOSE-6-PHOSPHATE SYNTHASE) (UDP-GLUCOSE-GLUCOSEPHOSPHATE<br>GLUCOSYLTRANSFERASE)                   |
| 8863                   | 21942                 | 35477             | 0.82                 | 1.2E+00                                       | P38427                   | SWISSPROT                     | Homo sapiens CGH-30 protein (LOC51611), mRNA  |
| 9077                   | 22156                 |                   | 0.7                  | 1.2E+00                                       | 7706271                  | NT                            | MR2-CT0222-201068-001-e07 CT0222 Homo sapiens cDNA  |
| 9228                   | 22304                 | 35847             | 1.81                 | 1.2E+00                                       | AW377210.1               | EST_HUMAN                     | y689b06.r1 Scores fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:202066 5'  |
| 9440                   | 22614                 | 36078             | 0.61                 | 1.2E+00                                       | HA48596.1                | EST_HUMAN                     |   |

Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>N : | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 9598                   | 22853                 | 38224             | 3.78                 | 1.2E+00                                       | Z32850.1                 | NT                            | R. communis gene for pyrophosphate-dependent phosphofructokinase beta subunit                  |
| 9806                   | 22845                 | 38423             | 2.13                 | 1.2E+00                                       | D11745.1                 | EST_HUMAN                     | HJMH107A01 Liver HepG2 cell line. Homo sapiens cDNA clone hmt01a01                             |
| 10135                  | 23173                 | 38771             | 3.6                  | 1.2E+00                                       | X58832.1                 | NT                            | H. sapiens ENO3 gene for muscle specific enolase   |
| 10532                  | 23307                 |                   | 0.82                 | 1.2E+00                                       | AB000866.1               | NT                            | Homo sapiens Notho gene, exon 1  |
| 11432                  | 24483                 | 38158             | 1.69                 | 1.2E+00                                       | M38688.1                 | NT                            | Mus musculus Id gene, exon 1   |
| 11627                  | 24707                 | 38400             | 1.51                 | 1.2E+00                                       | AW817817.1               | EST_HUMAN                     | PMO-ST0284-161188-001-001 ST0284 Homo sapiens cDNA   |
| 11688                  | 24743                 |                   | 7.69                 | 1.2E+00                                       | BE160781.1               | EST_HUMAN                     | PM1-HT0422-160200-007-g10 HT0422 Homo sapiens cDNA   |
| 11744                  | 23930                 | 37556             | 3.13                 | 1.2E+00                                       | U50147.1                 | NT                            | Radix norvegicus synapse-associated protein 102 mRNA, complete cds                             |
| 12101                  | 25081                 | 38788             | 1.68                 | 1.2E+00                                       | M10408.1                 | NT                            | Metazoa mitochondrial F-O-A-TPase proteolipid (subunit 8) gene                                 |
| 12471                  | 25884                 | 31788             | 17.76                | 1.2E+00                                       | AL163203.2               | NT                            | Homo sapiens chromosome 21 segment HS21C003  |
| 12491                  | 25339                 |                   | 1.74                 | 1.2E+00                                       | AP001515.1               | NT                            | Bacillus halodurans genomic DNA, section 8/14  |
| 13218                  | 25703                 |                   | 2.68                 | 1.2E+00                                       | AA077903.1               | EST_HUMAN                     | 7H11A06 Chromosome 7 HeLa cDNA Library Homo sapiens cDNA clone 7H11A06                         |
| 478                    | 13871                 | 28703             | 1.11                 | 1.1E+00                                       | D88880.1                 | NT                            | Human mRNA for KIAA0227 gene, partial cds  |
| 1802                   | 14851                 | 28045             | 1.23                 | 1.1E+00                                       | AW885888.1               | EST_HUMAN                     | QV0-BN0042-170300-163-g12 BN0042 Homo sapiens cDNA   |
| 1948                   | 15091                 | 28192             | 1.21                 | 1.1E+00                                       | AW575889.1               | EST_HUMAN                     | UHF-BR0p-alk-F02-Q-U1.s1 NIH_MGC 52 Homo sapiens cDNA clone IMAGE:3074834.3'                   |
| 2017                   | 15157                 |                   | 2.74                 | 1.1E+00                                       | AF137273.1               | NT                            | Gallus gallus alpha 1 (V) collagen mRNA, complete cds  |
| 3409                   | 16579                 | 28584             | 8.86                 | 1.1E+00                                       | AL163213.2               | NT                            | Homo sapiens chromosome 21 segment HS21C013  |
| 3409                   | 16579                 | 28586             | 8.86                 | 1.1E+00                                       | AL163213.2               | NT                            | Homo sapiens chromosome 21 segment HS21C013  |
| 3575                   | 16740                 | 28757             | 1.02                 | 1.1E+00                                       | 8822841                  | NT                            | Homo sapiens hypothetical protein FLJ10749 (FLJ10749), mRNA                                    |
|                        |                       |                   |                      |   |                          |                               | wf6-4h11.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2359461.3' similar to            |
| 3670                   | 16833                 | 28844             | 0.89                 | 1.1E+00                                       | AI808360.1               | EST_HUMAN                     | SW_F531_HUMAN_Q12888_P53-BINDING PROTEIN 53BP1 ;   |
| 3812                   | 16972                 | 28974             | 1.16                 | 1.1E+00                                       | AE003888.1               | NT                            | Xyella fastidiosa, section 32 of 229 of the complete genome                                    |
| 3812                   | 16972                 | 28975             | 1.16                 | 1.1E+00                                       | AE003888.1               | NT                            | Xyella fastidiosa, section 32 of 229 of the complete genome                                    |
| 3820                   | 17078                 |                   | 0.82                 | 1.1E+00                                       | X86374.1                 | NT                            | H-parahaeemolyticus hphIM(A), hphIM(C), hphIR and menB genes                                   |
| 4054                   | 17210                 | 30220             | 1.03                 | 1.1E+00                                       | 8822841                  | NT                            | Homo sapiens hypothetical protein FLJ10749 (FLJ10749), mRNA                                    |
| 4130                   | 17283                 | 30278             | 0.72                 | 1.1E+00                                       | 6765205                  | NT                            | Mus musculus proteasome (prosome, macropain) subunit, beta type 7 (Pamb7), mRNA                |
| 4331                   | 17474                 |                   | 6.82                 | 1.1E+00                                       | 5835331                  | NT                            | R. uniconis complete mitochondrial genome  |
| 5107                   | 18235                 | 31204             | 3.45                 | 1.1E+00                                       | U18468.1                 | NT                            | African swine fever virus, complete genome   |
| 5180                   | 18302                 | 31266             | 2.08                 | 1.1E+00                                       | X78425.1                 | NT                            | E. faecalis pfp5 gene  |
| 5422                   | 18323                 | 31588             | 1.49                 | 1.1E+00                                       | 6978530                  | NT                            | Radix norvegicus Aquaporin 4 (Aqp4), mRNA  |
| 5731                   | 18324                 | 32218             | 14.33                | 1.1E+00                                       | BE980184.1               | EST_HUMAN                     | 601652778R1 NIH_MGC 58 Homo sapiens cDNA clone IMAGE:3825835.3'                                |
| 5750                   | 18942                 | 32243             | 1.32                 | 1.1E+00                                       | AI138582.1               | EST_HUMAN                     | qd85c03.x1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:1738280.3'                          |
| 6217                   | 19382                 | 32740             | 0.9                  | 1.1E+00                                       | 11419739                 | NT                            | Homo sapiens solute carrier family 8 (neurotransmitter transporter), member 14 (SLC8A14), mRNA |

Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 6404                   | 19578                 | 93935             | 0.69                 | 1.1E+00                                       | AF167891.1               | NT                            | Macgregoria pulchra cytochrome b gene, complete cds; mitochondrial gene for mitochondrial product                                |
| 6537                   | 19700                 | 93073             | 0.72                 | 1.1E+00                                       | R06037.1                 | EST_HUMAN                     | y88a03.r1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:124924 5'  |
| 6856                   | 20008                 | 93419             | 0.78                 | 1.1E+00                                       | AJ404004.1               | NT                            | Mus musculus mRNA for ER protein 68 (EP68 gene)  |
| 7447                   | 20524                 | 93997             | 0.58                 | 1.1E+00                                       | X55981.1                 | NT                            | Malva mRNA for endosse (2-phospho-D-glycerate hydrolase)   |
| 7632                   | 20701                 | 94179             | 0.87                 | 1.1E+00                                       | BF683714.1               | EST_HUMAN                     | 602136978F1 NIH_MGC_46 Homo sapiens cDNA clone IMAGE:4301322 5'  |
| 7659                   | 20728                 | 94201             | 2.23                 | 1.1E+00                                       | Z72938.1                 | NT                            | Herpes simplex virus type 1 (strain KOS) UL41 gene   |
| 7659                   | 20728                 | 94202             | 2.23                 | 1.1E+00                                       | Z72338.1                 | NT                            | Herpes simplex virus type 1 (strain KOS) UL41 gene   |
| 7680                   | 20745                 | 94226             | 8.36                 | 1.1E+00                                       | AL161588.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, coding fragment No. 84  |
| 7754                   | 25553                 | 94305             | 1.04                 | 1.1E+00                                       | 11987890                 | NT                            | Mus musculus silent mating type information regulation 2, (S.oarevises), homolog, like (Sir2), mRNA                              |
| 8325                   | 21407                 | 94094             | 3.2                  | 1.1E+00                                       | BF693936.1               | EST_HUMAN                     | 602082582F1 NIH_MGC_81 Homo sapiens cDNA clone IMAGE:4246628 5'  |
| 8416                   | 21497                 | 95029             | 0.91                 | 1.1E+00                                       | AJ478339.1               | EST_HUMAN                     | h39h11.x1 NC1 CGAP_Kid11 Homo sapiens cDNA clone IMAGE:2160549 3'  |
| 8835                   | 22014                 | 95554             | 0.86                 | 1.1E+00                                       | AS003088.1               | NT                            | Acetabularia caliculus mitochondrial COX1-like gene  |
| 9015                   | 22084                 | 95634             | 0.87                 | 1.1E+00                                       | S80750.1                 | NT                            | VI-Har18-cytomegalovirus glycoprotein B antibody 4D4 heavy chain variable region (human, mRNA Partial, 376 nt)                   |
| 9126                   | 22205                 | 95748             | 0.53                 | 1.1E+00                                       | A079946.1                | EST_HUMAN                     | cc34f05.x1 Soares NIHIMPUL S1 Homo sapiens cDNA clone IMAGE:1677249 3'   |
| 9637                   | 21080                 | 96450             | 0.75                 | 1.1E+00                                       | BE384878.1               | EST_HUMAN                     | 601276278F1 NIH_MGC_20 Homo sapiens cDNA clone IMAGE:3817418 5'  |
| 9828                   | 22868                 | 96450             | 0.81                 | 1.1E+00                                       | AJ245772.1               | NT                            | Mus musculus mRNA for stretch responsive muscle (X-chromosome) protein (Srmx gene)   |
| 9883                   | 22923                 |                   | 0.81                 | 1.1E+00                                       | Y12227.1                 | NT                            | Arabidopsis thaliana DNA, 24 kb surrounding PFL locus  |
| 9974                   | 23013                 | 96607             | 1.03                 | 1.1E+00                                       | L76301.1                 | NT                            | Yersinia pseudotuberculosis psaE, psaF, adhesin (psaA), chaperone (psaB), and usher (psaC) genes, complete cds                   |
| 10038                  | 23078                 | 96676             | 1.86                 | 1.1E+00                                       | A9023151.1               | NT                            | Homo sapiens mRNA for KIAA0934 protein, partial cds  |
| 10141                  | 23179                 | 96777             | 4.08                 | 1.1E+00                                       | AL161515.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, coding fragment No. 27  |
| 10202                  | 23239                 | 96829             | 20.74                | 1.1E+00                                       | 6754021                  | NT                            | Mus musculus guanine nucleotide binding protein (G protein), gamma 3 subunit (Grg3), mRNA  |
| 10719                  | 23752                 | 97358             | 1.21                 | 1.1E+00                                       | P73769                   | SWISSPROT                     | DNA Mismatch REPAIR PROTEIN MUTS   |
| 10831                  | 23854                 | 37488             | 0.56                 | 1.1E+00                                       | AJ878821.1               | EST_HUMAN                     | au51c11.y1 Schneider fetal brain 00004 Homo sapiens cDNA clone IMAGE:2518292 5' similar to gb:D10822                             |
| 10886                  | 23970                 | 37600             | 1.97                 | 1.1E+00                                       | 11087984                 | NT                            | Human mRNA for 80K-L protein, complete cds. (HUMAN); Homo sapiens KIAA0626 gene product (KIAA0626), mRNA                         |
| 10947                  | 24029                 |                   | 3.14                 | 1.1E+00                                       | AF068942.1               | NT                            | Klebsiella pneumoniae cytochrome c oxidase subunit 2 (cox2) gene, mitochondrial gene encoding mitochondrial protein, partial cds |
| 11343                  | 24408                 | 98055             | 3.72                 | 1.1E+00                                       | L16877.1                 | NT                            | Homo sapiens cytochrome P450C8 (CYP2C8) gene, 5' flank and exon 1  |
| 11361                  | 18489                 |                   | 2.74                 | 1.1E+00                                       | 8222073                  | NT                            | Homo sapiens hypothetical protein FLJ11280 (FLJ11280), mRNA  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>D NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|------------------|----------------------|---|--------------------------|-------------------------------|--|
| 11368                  | 24427                 | 38083            | 2.83                 | 1.1E+00                                       | AF012802.1               | NT                            | Petroselinum crispum cytosolic glucose-6-phosphate dehydrogenase 1 (cG6PDH1) mRNA, complete cds  |
| 11369                  | 24427                 | 38084            | 2.03                 | 1.1E+00                                       | AF012802.1               | NT                            | Petroselinum crispum cytosolic glucose-6-phosphate dehydrogenase 1 (cG6PDH1) mRNA, complete cds  |
| 11637                  | 24717                 | 38408            | 3.88                 | 1.1E+00                                       | AB009689.1               | EST_HUMAN                     | w766r1.x1 Soares_NFL_T_G8C_S1 Homo sapiens cDNA clone IMAGE:2361548 3'   |
| 11870                  | 24858                 | 38502            | 1.38                 | 1.1E+00                                       | D88501.1                 | NT                            | Human PBI gene, complete cds   |
| 11870                  | 24858                 | 38553            | 1.38                 | 1.1E+00                                       | D88501.1                 | NT                            | Human PBI gene, complete cds   |
| 12441                  | 25312                 |                  | 1.82                 | 1.1E+00                                       | P07686                   | SWISSPROT                     | LOW TEMPERATURE ESSENTIAL PROTEIN  |
| 12647                  | 26371                 | 32070            | 3.56                 | 1.1E+00                                       | AF210698.1               | NT                            | Taenia solium immunogenic protein Ts78 mRNA, partial cds   |
| 12688                  | 26980                 |                  | 1.88                 | 1.1E+00                                       | AF234189.1               | NT                            | Dicotyledon discoidium isopentenyl pyrophosphate isomerase (Dipi) mRNA, complete cds   |
| 101                    | 13337                 |                  | 1.84                 | 1.0E+00                                       | U23808.1                 | NT                            | Xenopus laevis rhodopsin gene, complete cds  |
| 118                    | 13347                 | 26374            | 2.1                  | 1.0E+00                                       | D88425.1                 | NT                            | Caixa cobaya mRNA for sarcothreosine kinase, complete cds  |
| 431                    | 13628                 |                  | -2.78                | 1.0E+00                                       | AB021094.1               | NT                            | Mercurialis polymorpha gene for 28S rRNA, 5S rRNA, 18S rRNA, 5.8S rRNA and 26S rRNA  |
| 690                    | 13781                 | 28800            | 1.44                 | 1.0E+00                                       | AJ251690.1               | NT                            | Chardulia ligurina mRNA for homeodomain transcription factor (eo gene)   |
| 694                    | 13877                 | 28910            | 7.14                 | 1.0E+00                                       | AL163218.2               | NT                            | Homo sapiens chromosome 21 segment HS21C018  |
| 696                    | 13879                 |                  | 2.29                 | 1.0E+00                                       | AF125894.1               | NT                            | Aedes aegypti mucin-like protein MUC1 mRNA, complete cds   |
| 1417                   | 16037                 |                  | 1.35                 | 1.0E+00                                       | X80416.1                 | NT                            | V. carteri Algal-CAM mRNA  |
| 1795                   | 14944                 | 28037            | 1.33                 | 1.0E+00                                       | AB006531.1               | NT                            | Plasmodium falciparum virus RNA for nonstructural polyprotein, capsid protein precursor, complete cds  |
| 2554                   | 15578                 | 28903            | 1.11                 | 1.0E+00                                       | P48355                   | SWISSPROT                     | DNA GYRASE SUBUNIT B   |
| 2554                   | 15578                 | 28904            | 1.11                 | 1.0E+00                                       | P48355                   | SWISSPROT                     | DNA GYRASE SUBUNIT B   |
| 2821                   | 15744                 |                  | 0.95                 | 1.0E+00                                       | AA028453.1               | EST_HUMAN                     | af28908.e1 Soares_total_fetus_Nb2HFB_9w Homo sapiens cDNA clone IMAGE:1032830 3' similar to WP-C42D8.3 CE04204 ; contains element MER22 MER22 repetitive element ; |
| 2940                   | 16117                 | 28129            | 4.51                 | 1.0E+00                                       | P24008                   | SWISSPROT                     | 3-OXO-5-ALPHA-STEROID 4-DEHYDROGENASE 1 (STEROID 5-ALPHA-REDUCTASE 1) (SR TYPE 1)  |
| 2940                   | 16117                 | 28130            | 4.51                 | 1.0E+00                                       | P24008                   | SWISSPROT                     | 3-OXO-5-ALPHA-STEROID 4-DEHYDROGENASE 1 (STEROID 5-ALPHA-REDUCTASE 1) (SR TYPE 1)  |
| 3032                   | 16208                 |                  | 0.95                 | 1.0E+00                                       | O14228                   | SWISSPROT                     | HYPOPHETICAL 67.9 KD PROTEIN C8F12.08C IN CHROMOSOME 1   |
| 3289                   | 16443                 | 28463            | 1.16                 | 1.0E+00                                       | AA028453.1               | EST_HUMAN                     | af28908.e1 Soares_total_fetus_Nb2HFB_9w Homo sapiens cDNA clone IMAGE:1032830 3' similar to WP-C42D8.3 CE04204 ; contains element MER22 MER22 repetitive element ; |
| 3469                   | 16828                 |                  | 0.73                 | 1.0E+00                                       | AF222781.1               | NT                            | Rattus norvegicus neurokinin U precursor (NmlU) gene, exons 5 and 6  |
| 3688                   | 13337                 |                  | 0.75                 | 1.0E+00                                       | U23808.1                 | NT                            | Xenopus laevis rhodopsin gene, complete cds  |
| 3772                   | 16933                 | 28939            | 1.61                 | 1.0E+00                                       | AJ223816.1               | NT                            | Agerium bisporus mRNA for tyrosinase   |

Page 28 of 550

Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 4180                   | 17330                 | 30322             | 1.12                 | 1.0E+00                                       | AF223391.1               | NT                            | Homo sapiens calcium channel alpha1E subunit (CACNA1E) gene, exons 7-49, and partial cds, alternatively spliced   |
| 4380                   | 17633                 |                   | 0.72                 | 1.0E+00                                       | 8822245                  | NT                            | Homo sapiens hypothetical protein FLJ10139 (FLJ10139), mRNA   |
| 5396                   | 18598                 | 31598             | 2.3                  | 1.0E+00                                       | Z97022.1                 | NT                            | Hordeum vulgare gene encoding cysteine protease   |
| 5971                   | 19157                 | 32472             | 4.38                 | 1.0E+00                                       | AF248054.1               | NT                            | Bos taurus micromolar calcium activated neutral protease 1 (CAPN1) gene, exons 11-20, and partial cds   |
| 5971                   | 19157                 | 32473             | 4.38                 | 1.0E+00                                       | AF248054.1               | NT                            | Bos taurus micromolar calcium activated neutral protease 1 (CAPN1) gene, exons 11-20, and partial cds   |
| 6077                   | 18259                 | 32588             | 1.74                 | 1.0E+00                                       | Z97341.2                 | NT                            | Arabidopsis thaliana DNA chromosome 4, ESSA1 FCA contig fragment No. 6  |
| 6241                   | 19415                 | 32763             | 4.86                 | 1.0E+00                                       | P04501                   | SWISSPROT                     | FIBRIN PROTEIN  |
| 8248                   | 19422                 | 32768             | 1.87                 | 1.0E+00                                       | AW452782.1               | EST_HUMAN                     | UH-H-B18-ab-d-09-Q-UJ.s1 NCI_CQAP_Sub5 Homo sapiens cDNA clone IMAGE:3068888 3'   |
| 8818                   | 19778                 | 33187             | 2.04                 | 1.0E+00                                       | U75902.1                 | NT                            | Mus musculus subtilisin-like serine protease LPC (PC7) gene, exons 1 to 9, partial cds  |
| 8871                   | 19830                 | 33219             | 0.83                 | 1.0E+00                                       | AF104680.1               | NT                            | Homo sapiens cell cycle protein (PA204) gene, exons 2 through 5   |
| 8767                   | 19828                 |                   | 1.07                 | 1.0E+00                                       | P49506                   | SWISSPROT                     | SRB-11 PROTEIN  |
| 6795                   | 19950                 | 33349             | 0.82                 | 1.0E+00                                       | BE797710.1               | EST_HUMAN                     | 601581891F1 NIH_MGC_7 Homo sapiens cDNA clone IMAGE:3936382 5'  |
| 6795                   | 19950                 | 33350             | 0.82                 | 1.0E+00                                       | BE797710.1               | EST_HUMAN                     | 601581891F1 NIH_MGC_7 Homo sapiens cDNA clone IMAGE:3936382 5'  |
| 6916                   | 20231                 | 33684             | 1.27                 | 1.0E+00                                       | Y11204.1                 | NT                            | V. carteri gene encoding volvoxopsin  |
| 7288                   | 20371                 | 33826             | 1.15                 | 1.0E+00                                       | S62770.1                 | NT                            | Insulin-like growth factor-binding protein 4 [catilla, pulmonary artery endothelial cells, mRNA, 2028 nt]   |
| 7847                   | 20716                 |                   |                      |   |                          |                               | B-CELL RECEPTOR CD22 PRECURSOR (LEU-14) (B-LYMPHOCYTE CELL ADHESION MOLECULE) (BL-CAM)  |
| 7889                   | 20941                 | 34447             | 1.51                 | 1.0E+00                                       | AF192531.1               | NT                            | Homo sapiens endothelin-converting enzyme 2 (ECE2) mRNA, complete cds   |
| 7903                   | 20955                 | 34462             | 8.02                 | 1.0E+00                                       | AA776191.1               | EST_HUMAN                     | ac70b08.s1 Strabegone lung (8337210) Homo sapiens cDNA clone IMAGE:868781 3'  |
| 8019                   | 21070                 |                   | 0.72                 | 1.0E+00                                       | BF79213.1                | EST_HUMAN                     | 602163782F1 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:4284727 5'   |
| 8148                   | 21230                 | 34749             | 1.85                 | 1.0E+00                                       | BE868267.1               | EST_HUMAN                     | 601443850F1 NIH_MGC_65 Homo sapiens cDNA clone IMAGE:3948005 5'   |
| 8148                   | 21230                 | 34760             | 1.86                 | 1.0E+00                                       | BE868267.1               | EST_HUMAN                     | 601443850F1 NIH_MGC_65 Homo sapiens cDNA clone IMAGE:3948005 5'   |
| 8335                   | 18498                 |                   | 1.48                 | 1.0E+00                                       | D10852.1                 | NT                            | Rattus norvegicus mRNA for N-acetylglucosaminyltransferase III, complete cds  |
|                        |                       |                   |                      |   |                          |                               | PEROXISOMAL HYDRATASE-DEHYDROGENASE-EPIMERASE (HDE) (MULTIFUNCTIONAL BETA-OXIDATION PROTEIN) (MFP) [INCLUDES: 2-ENOYL-COA HYDRATASE; D-3-HYDROXYACYL COA DEHYDROGENASE] |
| 8545                   | 21828                 | 35163             | 2.59                 | 1.0E+00                                       | Q02207                   | SWISSPROT                     | PEROXISOMAL HYDRATASE-DEHYDROGENASE-EPIMERASE (HDE) (MULTIFUNCTIONAL BETA-OXIDATION PROTEIN) (MFP) [INCLUDES: 2-ENOYL-COA HYDRATASE; D-3-HYDROXYACYL COA DEHYDROGENASE] |
| 8545                   | 21828                 | 35164             | 2.59                 | 1.0E+00                                       | Q02207                   | SWISSPROT                     | PEROXISOMAL HYDRATASE-DEHYDROGENASE-EPIMERASE (HDE) (MULTIFUNCTIONAL BETA-OXIDATION PROTEIN) (MFP) [INCLUDES: 2-ENOYL-COA HYDRATASE; D-3-HYDROXYACYL COA DEHYDROGENASE] |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 8672                   | 21762                 |                   | 1.07                 | 1.0E+00                                       | P51784                   | SWISSPROT                     | UBIQUITIN CARBOXYL-TERMINAL HYDROLASE 11 (UBIQUITIN THIOLESTERASE 11) (UBIQUITIN-SPECIFIC PROCESSING PROTEASE 11) (DEUBIQUITINATING ENZYME 11)   |
| 8708                   | 21788                 | 35321             | 0.54                 | 1.0E+00                                       | Q876T5                   | SWISSPROT                     | UBIQUITIN CARBOXYL-TERMINAL HYDROLASE 16 (UBIQUITIN THIOLESTERASE 16) (UBIQUITIN-SPECIFIC PROCESSING PROTEASE 16) (DEUBIQUITINATING ENZYME 16) (UBIQUITIN PROCESSING PROTEASE UBP-M)   |
| 8708                   | 21788                 | 35322             | 0.54                 | 1.0E+00                                       | Q876T5                   | SWISSPROT                     | UBIQUITIN CARBOXYL-TERMINAL HYDROLASE 16 (UBIQUITIN THIOLESTERASE 16) (UBIQUITIN-SPECIFIC PROCESSING PROTEASE 16) (DEUBIQUITINATING ENZYME 16) (UBIQUITIN PROCESSING PROTEASE UBP-M)   |
| 8735                   | 25858                 |                   | 1.82                 | 1.0E+00                                       | BE147331.1               | EST_HUMAN                     | RC1-HT0228-181089-011-e06 HT0228 Homo sapiens cDNA   |
| 8778                   | 21855                 | 35307             | 1.15                 | 1.0E+00                                       | U42720.2                 | NT                            | Sin18 Immunodeficiency virus Gag protein (gag) gene, complete cds; Pol protein (pol) gene, partial cds; and Vif protein (vif), Vpr protein (vpr), Tat protein (tat), Rev protein (rev), Vpu protein (vpu), Env protein (env), and Nef protein (nef) genes. > |
| 8822                   | 22001                 | 35540             | 1.8                  | 1.0E+00                                       | M39427.1                 | NT                            | Human immunodeficiency virus type 1 (HIV-1). Isolate SF33.   |
| 8471                   | 22528                 | 35081             | 1.95                 | 1.0E+00                                       | BE307592.1               | EST_HUMAN                     | 601497581F1 NIH_MGC 70 Homo sapiens cDNA clone IMAGE:3800421 5'  |
| 9682                   | 22731                 | 36301             | 1.82                 | 1.0E+00                                       | 6753429                  | NT                            | Mus musculus chloride channel calcium activated 1 (Clca1), mRNA  |
| 9682                   | 22731                 | 36302             | 1.82                 | 1.0E+00                                       | 6753429                  | NT                            | Mus musculus chloride channel calcium activated 1 (Clca1), mRNA  |
| 9810                   | 22850                 | 36429             | 1.81                 | 1.0E+00                                       | AV688554.1               | EST_HUMAN                     | AV688554 GKC Homo sapiens cDNA clone GKCCYA11 5'   |
| 9816                   | 22865                 | 36434             | 1.32                 | 1.0E+00                                       | U44982.1                 | NT                            | Xenopus laevis zona pellucida C glycoprotein precursor (XZPC) mRNA, complete cds   |
| 9816                   | 22865                 | 36435             | 1.32                 | 1.0E+00                                       | U44952.1                 | NT                            | Xenopus laevis zona pellucida C glycoprotein precursor (XZPC) mRNA, complete cds   |
| 10318                  | 23353                 | 36961             | 0.82                 | 1.0E+00                                       | 5174562                  | NT                            | Homo sapiens MHC binding factor, beta (MHCBFB) mRNA  |
| 10318                  | 23353                 | 36962             | 0.82                 | 1.0E+00                                       | 5174562                  | NT                            | Homo sapiens MHC binding factor, beta (MHCBFB) mRNA  |
| 10408                  | 23443                 | 37060             | 0.69                 | 1.0E+00                                       | A077820.1                | EST_HUMAN                     | OY15007.s1 Soares_senscent_fibroblasts_NHRSF Homo sapiens cDNA clone IMAGE:1065901 3'  |
| 10633                  | 23668                 | 37176             | 3.69                 | 1.0E+00                                       | AV768825.1               | EST_HUMAN                     | AV768825 BM Homo sapiens cDNA clone BMFAW04 5'   |
| 10894                  | 23727                 | 37333             | 19.71                | 1.0E+00                                       | AA004882.1               | EST_HUMAN                     | Zf94a02.1 Soares_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:428908 5'   |
| 10894                  | 23727                 | 37334             | 19.71                | 1.0E+00                                       | AA004882.1               | EST_HUMAN                     | Zf94a02.1 Soares_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:428908 5'   |
| 10728                  | 23761                 | 37368             | 1.22                 | 1.0E+00                                       | L11910.1                 | NT                            | Human retinoblastoma susceptibility gene exon 1-27, complete cds   |
| 11216                  | 24285                 | 37924             | 1.37                 | 1.0E+00                                       | S80825.1                 | NT                            | PBR1=proline-rich protein [intron 3] [human, Genomic, 898 nt]  |
| 11342                  | 24405                 | 38054             | 1.48                 | 1.0E+00                                       | AA701494.1               | EST_HUMAN                     | Zf63b11.s1 Soares_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:436463 3' similar to contains Alu repetitive element; contains element MEF38 repetitive element;   |
| 11825                  | 24814                 |                   | 1.82                 | 1.0E+00                                       | L47613.1                 | NT                            | Picea glauca EMB313 mRNA   |
| 12328                  | 25238                 |                   | 5.49                 | 1.0E+00                                       | P19308                   | SWISSPROT                     | THROMBOMODULIN PRECURSOR (PETOMODULIN) (TM)  |
| 12878                  | 25451                 |                   | 2.67                 | 1.0E+00                                       | AW976184.1               | EST_HUMAN                     | EST388283 IMAGE rescues, MAGN Homo sapiens cDNA  |
| 3693                   | 18855                 |                   | 1.04                 | 9.9E-01                                       | AF174585.1               | NT                            | Apple mosaic virus RNA 2 putative polymerase gene, complete cds  |
| 5752                   | 18944                 | 32246             | 8.8                  | 9.9E-01                                       | P48657                   | SWISSPROT                     | SERINE/THREONINE PROTEIN KINASE MINIBRAIN  |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 6990                   | 19176                 | 32498             | 0.83                 | 9.9E-01                                       | Q09032                   | SWISSPROT                     | PROBABLE OXIDOREDUCTASE ZK1290.5 IN CHROMOSOME II   |
| 9461                   | 22518                 |                   | 1.68                 | 9.9E-01                                       | U86687.1                 | NT                            | Lycopodium esculentum putative MIT copy 1 nematode-resistance gene  |
| 9765                   | 22693                 |                   | 2.14                 | 9.9E-01                                       | Q28942                   | SWISSPROT                     | B2 BRADYKININ RECEPTOR (BK-2 RECEPTOR)  |
| 536                    | 13729                 | 26753             | 1.17                 | 9.8E-01                                       | P22967                   | SWISSPROT                     | AMINO-ACID ACETYLTRANSFERASE (N-ACETYLGLUTAMATE SYNTHASE) (AGS) (NAGS)  |
| 2370                   | 15501                 |                   | 1.26                 | 9.8E-01                                       | AJ003108.1               | NT                            | Callithrix jacchus UBE1 gene derived retroposon on the Y chromosome   |
| 2862                   | 15976                 |                   | 1.29                 | 9.8E-01                                       | AF174844.1               | NT                            | Xenopus laevis rac GTPase mRNA, complete cds  |
| 3803                   | 17062                 | 30061             | 0.67                 | 9.8E-01                                       | BE967439.2               | EST_HUMAN                     | 601653583R2 NIH_MGC_55 Homo sapiens cDNA clone IMAGE:3839461 3'   |
| 3903                   | 17062                 | 30062             | 0.67                 | 9.8E-01                                       | BE967439.2               | EST_HUMAN                     | 601653583R2 NIH_MGC_55 Homo sapiens cDNA clone IMAGE:3839461 3'   |
| 7349                   | 20429                 | 33860             | 4.42                 | 9.8E-01                                       | AJ302158.1               | NT                            | Enterobacteriaceae sp. JN883 partial groES gene for GroES-like protein and partial groEL gene for GroEL-like protein, isolate JN883   |
| 7349                   | 20429                 | 33861             | 4.42                 | 9.8E-01                                       | AJ302158.1               | NT                            | Enterobacteriaceae sp. JN883 partial groES gene for GroES-like protein and partial groEL gene for GroEL-like protein, isolate JN883   |
| 7823                   | 20878                 | 34378             | 1.14                 | 9.8E-01                                       | BF034016.1               | EST_HUMAN                     | 601456337F1 NIH_MGC_68 Homo sapiens cDNA clone IMAGE:3860049 5'   |
| 7823                   | 20878                 | 34379             | 1.14                 | 9.8E-01                                       | BF034016.1               | EST_HUMAN                     | 601456337F1 NIH_MGC_68 Homo sapiens cDNA clone IMAGE:3860049 5'   |
| 8916                   | 21985                 | 35534             | 0.94                 | 9.8E-01                                       | P38652                   | SWISSPROT                     | PHOSPHOGLUCOMUTASE (GLUCOSE PHOSPHOMUTASE) (PGM)  |
| 10853                  | 23687                 |                   | 1.02                 | 9.8E-01                                       | AA825955.1               | EST_HUMAN                     | cd55d04.s1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:1371847 3'   |
| 11242                  | 24311                 | 37948             | 1.84                 | 9.8E-01                                       | BE268705.1               | EST_HUMAN                     | 601110258F1 NIH_MGC_16 Homo sapiens cDNA clone IMAGE:3350750 5'   |
| 11242                  | 24311                 | 37949             | 1.84                 | 9.8E-01                                       | BE268705.1               | EST_HUMAN                     | 601110258F1 NIH_MGC_16 Homo sapiens cDNA clone IMAGE:3350750 5'   |
| 12554                  | 25377                 |                   | 2.43                 | 9.8E-01                                       | U52111.2                 | NT                            | Homo sapiens X28 region near ALD locus containing dual specificity phosphatase 9 (DUSP9), ribosomal protein L18a (RPL18a), Cez2+/Calmodulin-dependent protein kinase 1 (CAMK1), creatine transporter (CTR), CDM protein (CDM), adrenoleukodystrophy protein > |
| 7309                   | 20391                 | 33951             | 2.73                 | 9.7E-01                                       | U28716.1                 | NT                            | Drosophila melanogaster sodium channel protein (para) gene, exons 9,10,11,12 and optional segments b, c, d and e, partial cds   |
| 8701                   | 21781                 | 35314             | 1.9                  | 9.7E-01                                       | AF149112.1               | NT                            | Triticum aestivum stripe rust resistance protein Yr10 (Yr10) gene, complete cds   |
| 8707                   | 21787                 | 35320             | 1.54                 | 9.7E-01                                       | M00544.1                 | NT                            | Salmonella typhimurium adenine-methyltransferase (mod) and restriction endonuclease (res)   |
| 9039                   | 22118                 | 35691             | 0.73                 | 9.7E-01                                       | BE799322.1               | EST_HUMAN                     | 601932165F1 NIH_MGC_7 Homo sapiens cDNA clone IMAGE:3945904 5'  |
| 11444                  | 24505                 |                   | 3.56                 | 9.7E-01                                       | BF511208.1               | EST_HUMAN                     | UH-H814-act-9-07-01.1 NCI_CGAP_Sub8 Homo sapiens cDNA clone IMAGE:3085140 3'  |
| 13208                  | 25789                 |                   | 3.17                 | 9.7E-01                                       | AL114281.1               | NT                            | Borlyis chereza strain T4 cDNA library under conditions of nitrogen deprivation   |
| 4558                   | 17693                 | 30676             | 0.74                 | 9.6E-01                                       | AF197825.1               | NT                            | Bromus inermis putative cytosolic phosphoglucomutase (pgm1) mRNA, complete cds  |
| 4558                   | 17693                 | 30676             | 0.74                 | 9.6E-01                                       | AF197825.1               | NT                            | Bromus inermis putative cytosolic phosphoglucomutase (pgm1) mRNA, complete cds  |
| 4590                   | 17717                 | 30700             | 1.28                 | 9.6E-01                                       | AW789874.1               | EST_HUMAN                     | PM2-UM0053-240300-005-112 UM0053 Homo sapiens cDNA  |
| 5872                   | 19062                 | 32369             | 3.51                 | 9.6E-01                                       | Z70568.1                 | NT                            | Parvovirus B19 DNA, patient C, genome position 2448-2984  |
| 5872                   | 19062                 | 32370             | 3.51                 | 9.6E-01                                       | Z70568.1                 | NT                            | Parvovirus B19 DNA, patient C, genome position 2448-2984  |
| 6886                   | 20038                 | 33447             | 0.6                  | 9.6E-01                                       | Z97941.2                 | NT                            | Arabidopsis thaliana DNA chromosome 4, ESSA I FCA contig fragment No. 6   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 7612                   | 20586                 | 34059             | 0.63                 | 9.6E-01                                       | AF197881.1               | NT                            | Helix lucorum presentin (PS) mRNA, complete cds   |
| 8588                   | 21887                 |                   | 1.62                 | 9.6E-01                                       | X85276.1                 | NT                            | P. falciparum complete gene map of plasmid-like DNA (IR-A)  |
| 9052                   | 22131                 | 35875             | 0.92                 | 9.6E-01                                       | L81138.1                 | NT                            | Rattus norvegicus (strain R21) Rps2r gene, complete cds   |
| 11346                  | 24408                 | 38090             | 1.42                 | 9.6E-01                                       | AF041427.1               | NT                            | Homo sapiens ribosomal protein s4 Y isoform gene, complete cds  |
| 11808                  | 24798                 | 38406             | 3.91                 | 9.6E-01                                       | AV752605.1               | EST_HUMAN                     | AV752605 NPD Homo sapiens cDNA clone NPD8AG06 5'  |
| 11808                  | 24798                 | 38497             | 3.91                 | 9.6E-01                                       | AV752605.1               | EST_HUMAN                     | AV752605 NPD Homo sapiens cDNA clone NPD8AG06 5'  |
| 12225                  | 25174                 |                   | 1.31                 | 9.6E-01                                       | 11421722                 | NT                            | Homo sapiens centromeres protein 2 (CEP2), mRNA   |
| 12916                  | 26081                 | 31686             | 1.68                 | 9.6E-01                                       | U091423.1                | NT                            | Sphynx tibu NADH dehydrogenase subunit 2 (NADH2) gene, mitochondrial gene encoding mitochondrial protein, partial cds       |
| 2545                   | 15970                 | 28794             | 1.81                 | 9.5E-01                                       | 7705581                  | NT                            | Homo sapiens C3H-125 protein (LOC51003), mRNA   |
| 3982                   | 17041                 | 30038             | 2.1                  | 9.6E-01                                       | BE902340.1               | EST_HUMAN                     | 601675639F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3858473 5'   |
| 3982                   | 17041                 | 30039             | 2.1                  | 9.6E-01                                       | BE902340.1               | EST_HUMAN                     | 601675639F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3858473 5'   |
| 6202                   | 22280                 | 35819             | 0.71                 | 9.5E-01                                       | A1190162.1               | EST_HUMAN                     | q657d07.x1 Score testis NIH Homo sapiens cDNA clone IMAGE:1733581 3'  |
| 8306                   | 22382                 | 35933             | 1.04                 | 9.5E-01                                       | AW861102.1               | EST_HUMAN                     | RC1-CTD286-241199-011-502 CT0285 Homo sapiens cDNA  |
| 11520                  | 24576                 | 38254             | 1.56                 | 9.5E-01                                       | BF216771.1               | EST_HUMAN                     | 601885163F1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:4103630 5'   |
| 11737                  | 23923                 | 37548             | 1.57                 | 9.6E-01                                       | AW283789.1               | EST_HUMAN                     | U14812-afp-f03-0-U1.s1 NCI CGAP Sub4 Homo sapiens cDNA clone IMAGE:2727677 3'   |
| 3271                   | 16446                 |                   | 5.72                 | 9.4E-01                                       | AF165890.1               | NT                            | Bartonella clarridgeiae RNA polymerase beta subunit (rpoB) gene, partial cds  |
| 3289                   | 16463                 |                   | 2.17                 | 9.4E-01                                       | AF080695.1               | NT                            | Pimpriella brachycarpa zinc finger protein (ZFP1) mRNA, complete cds  |
| 8008                   | 22145                 | 35592             | 0.79                 | 9.4E-01                                       | M80724.1                 | NT                            | Human Fo-gamma-receptorIIA (FCGR2A) gene, exon 4  |
| 12498                  | 25343                 |                   | 1.86                 | 9.4E-01                                       | BE761281.1               | EST_HUMAN                     | 601466705F1 NIH_MGC_67 Homo sapiens cDNA clone IMAGE:3868828 5'   |
| 12614                  | 25975                 |                   | 1.4                  | 9.4E-01                                       | 11419857                 | NT                            | Homo sapiens epidermal growth factor receptor (avian erythroblastic leukemia viral (v-erb-b) oncogene homolog) (EGFR), mRNA |
| 1769                   | 14918                 |                   | 1.24                 | 9.3E-01                                       | AF242382.1               | NT                            | Homo sapiens phytenoyl-CoA hydroxylase (PHYH) gene, exon 5  |
| 2689                   | 15818                 | 28834             | 3.62                 | 9.3E-01                                       | BE071172.1               | EST_HUMAN                     | RC5-BT0503-271199-011-B01 BT0503 Homo sapiens cDNA  |
| 4146                   | 17288                 | 30289             | 0.86                 | 9.3E-01                                       | M20218.1                 | NT                            | Bovine papillomavirus type 2, complete genome   |
| 4146                   | 17288                 | 30289             | 0.86                 | 9.3E-01                                       | M20218.1                 | NT                            | Bovine papillomavirus type 2, complete genome   |
| 6709                   | 18302                 | 32197             | 1.6                  | 9.3E-01                                       | AF213884.1               | NT                            | Homo sapiens nuclear factor of kappa light polypeptide gene enhancer in B-cells 1 (NFKB1) gene, complete cds                |
| 6786                   | 18368                 | 32289             | 3.48                 | 9.3E-01                                       | L36189.1                 | NT                            | Spodoptera frugiperda methylenetetrahydrofolate dehydrogenase mRNA, complete cds  |
| 7486                   | 20361                 |                   | 1.08                 | 9.3E-01                                       | AF270648.1               | NT                            | Plasmodium falciparum murene parasite-infected erythrocyte surface antigen (MESA) gene, complete cds                        |
| 8257                   | 21339                 | 34856             | 1.99                 | 9.3E-01                                       | AA847040.1               | EST_HUMAN                     | cc091603.s1 NCI CGAP_Ox2 Homo sapiens cDNA clone IMAGE:1385357  |
| 8013                   | 22092                 |                   | 1.1                  | 9.3E-01                                       | AF081981.1               | NT                            | Xenopus laevis CCH2 zinc finger protein C3H-2 (C3H-2) mRNA, complete cds  |
| 9137                   | 22216                 | 35780             | 0.89                 | 9.3E-01                                       | AL161534.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 34   |

Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 13039                  | 25883                 | 31881             | 2.09                 | 9.3E-01                                       | 11440288                 | NT                            | Homo sapiens inositol 1,4,5-trisphosphate receptor, type 2 (ITPR2), mRNA                               |
| 13049                  | 25888                 |                   | 1.22                 | 9.3E-01                                       | AF271207.1               | NT                            | Acades trispartitus putative large subunit ribosomal protein rpl.34 mRNA, complete cds                 |
| 3311                   | 18484                 | 28605             | 3.92                 | 9.2E-01                                       | BE622702.1               | EST_HUMAN                     | 601441338T1 NIH_MGC_72 Homo sapiens cDNA clone IMAGE:3916184 3'  |
| 4899                   | 18128                 |                   | 0.81                 | 9.2E-01                                       | BF128973.1               | EST_HUMAN                     | 601817814F1 NIH_MGC_68 Homo sapiens cDNA clone IMAGE:4041363 5'  |
| 5835                   | 18025                 |                   | 1.58                 | 9.2E-01                                       | 7106410                  | NT                            | Mus musculus scute carrier family 30 (zinc transporter), member 4 (Slc30a4), mRNA                      |
| 6109                   | 18289                 | 32824             | 4.97                 | 9.2E-01                                       | BF037588.1               | EST_HUMAN                     | 601401153F1 NIH_MGC_60 Homo sapiens cDNA clone IMAGE:3684081 5'  |
| 6770                   | 18925                 | 33320             | 0.85                 | 9.2E-01                                       | M84703.1                 | NT                            | N.crassa vsh1-RNA synthetase (cyl-20/un-3) gene  |
| 9860                   | 22800                 | 38484             | 0.88                 | 9.2E-01                                       | AL161688.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 65  |
| 9849                   | 22888                 | 39582             | 1.31                 | 9.2E-01                                       | 6871677                  | NT                            | Mus musculus carbonic anhydrase 4 (Car4), mRNA   |
| 10472                  | 23507                 | 37120             | 3.6                  | 9.2E-01                                       | 11430983                 | NT                            | Homo sapiens lysosomal enzyme-like protein 1 (LALP1), mRNA   |
| 10827                  | 23881                 | 37289             | 1.64                 | 9.2E-01                                       | BF583251.1               | EST_HUMAN                     | 7058403.1 NCI CGAP_Kid111 Homo sapiens cDNA clone IMAGE:3578219 3' similar to SW_AU56M_TRYBB           |
| 10883                  | 23967                 | 37698             | 1.78                 | 9.2E-01                                       | BE583811.1               | EST_HUMAN                     | P04940 NADH-UBIQUINONE OXIDOREDUCTASE CHAIN 5;   |
| 12022                  | 25006                 | 38707             | 1.5                  | 9.2E-01                                       | BF132402.1               | EST_HUMAN                     | 601334943F1 NIH_MGC_39 Homo sapiens cDNA clone IMAGE:3688714 5'  |
|                        |                       |                   |                      |   |                          |                               | 601820312F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:4052018 5'  |
| 1654                   | 14807                 | 27892             | 1.52                 | 9.1E-01                                       | T98875.1                 | EST_HUMAN                     | ye52f01.s1 Soares fetal liver spleen 1N1LS Homo sapiens cDNA clone IMAGE:121389 3' similar to contains |
| 2183                   | 15328                 |                   | 1.49                 | 9.1E-01                                       | 8823058                  | NT                            | Alu repetitive element   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens hypothetical protein FLJ20048 (FLJ20048), mRNA  |
| 3275                   | 16449                 | 28488             | 1.28                 | 9.1E-01                                       | T28418.1                 | EST_HUMAN                     | AB200389 Infant brain, LLNL array of Dr. M. Soares 1N1B Homo sapiens cDNA clone LLAB20038 5'           |
| 3275                   | 16449                 | 28489             | 1.28                 | 9.1E-01                                       | T28418.1                 | EST_HUMAN                     | AB200389 Infant brain, LLNL array of Dr. M. Soares 1N1B Homo sapiens cDNA clone LLAB20038 5'           |
| 8286                   | 18489                 | 32824             | 1.54                 | 9.1E-01                                       | L36033.1                 | NT                            | Human pre-B cell stimulating factor homologue (SDF1b) mRNA, complete cds                               |
| 8635                   | 18794                 | 33183             | 3.25                 | 9.1E-01                                       | Q61704                   | SWISSPROT                     | INTER-ALPHA-TRYPSIN INHIBITOR HEAVY CHAIN H3 PRECURSOR (ITI HEAVY CHAIN H3)                            |
| 7750                   | 20810                 | 34300             | 17.48                | 9.1E-01                                       | AA806823.1               | EST_HUMAN                     | cd71g08.s1 NCI CGAP_GC81 Homo sapiens cDNA clone IMAGE:1336882 3'                                      |
| 7916                   | 20567                 | 34473             | 2.81                 | 9.1E-01                                       | U72885.1                 | NT                            | Rattus norvegicus Rab3 GDP/GTP exchange protein mRNA, complete cds                                     |
| 10378                  | 23414                 | 37023             | 0.6                  | 9.1E-01                                       | P38432                   | SWISSPROT                     | P80-COILIN   |
| 12565                  | 26064                 |                   | 19.87                | 9.1E-01                                       | AF060113.1               | NT                            | Homo sapiens uncoupling protein-3 (UCP3) gene, complete cds  |
| 3277                   | 16451                 | 29472             | 0.8                  | 9.0E-01                                       | 7881023                  | NT                            | Homo sapiens DKFZP684M2423 protein (DKFZP684M2423), mRNA   |
| 3439                   | 16807                 |                   | 0.73                 | 9.0E-01                                       | AL161515.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 27  |
| 4219                   | 17888                 | 30857             | 0.88                 | 9.0E-01                                       | 8022310                  | NT                            | Homo sapiens hypothetical protein FLJ10251 (FLJ10251), mRNA  |
| 4498                   | 17838                 | 30620             | 1.43                 | 9.0E-01                                       | AF098810.1               | NT                            | Homo sapiens neuridin III-alpha gene, partial cds  |
| 5127                   | 18252                 | 31218             | 13.05                | 9.0E-01                                       | AF017729.1               | NT                            | Oryzobagrus cuniculus Rad51 (RAD51) mRNA, complete cds   |
| 7551                   | 20823                 | 34100             | 0.82                 | 9.0E-01                                       | L42547.1                 | NT                            | Danio rerio LIM class homeodomain protein (lim5) mRNA, complete cds                                    |
| 7579                   | 20651                 |                   | 1.42                 | 9.0E-01                                       | D38821.1                 | NT                            | Xenopus laevis gene for aldolase, complete cds   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>N : | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit<br>Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit<br>Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|-----------------------------|-------------------------------|--|
| 9549                   | 22614                 | 36183             | 0.68                 | 9.0E-01                                       | AF086781.1                  | NT                            | Danio rerio semaphorin 21a mRNA, complete cds  |
| 10035                  | 23073                 | 36873             | 0.48                 | 9.0E-01                                       | U89702.1                    | NT                            | Mycoplasma genitalium section 24 of 51 of the complete genome  |
| 12113                  | 25093                 | 38797             | 1.41                 | 9.0E-01                                       | AF146793.2                  | NT                            | Mus musculus neurexin U precursor (Nmu) gene, partial cds; tPhLP (Tphlp) gene, partial cds; CLOCK (Clock) gene, complete cds; PFT27 (PFT27) gene, complete cds; and H5AR (H5ar) gene, complete cds   |
| 5814                   | 19004                 | 32309             | 2.5                  | 8.9E-01                                       | AF028198.1                  | NT                            | Fugu rubripes neural cell adhesion molecule L1 homolog (L1-CAM) gene, complete cds; putative protein 1 (PUT1) gene, partial cds; mitotic-specific chromosome segregation protein SMC1 homolog (SMC1) gene, complete cds; and calcium channel alpha-1 subunit |
| 6378                   | 19647                 | 32309             | 1.28                 | 8.9E-01                                       | X60988.1                    | NT                            | Rabbit MHC fragment RLAD-DF DNA  |
| 6590                   | 25827                 | 33134             | 0.82                 | 8.9E-01                                       | BF217838.1                  | EST_HUMAN                     | 601882708F1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:4095216 5'  |
| 6590                   | 25827                 | 33135             | 0.82                 | 8.9E-01                                       | BF217838.1                  | EST_HUMAN                     | 601882708F1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:4095216 5'  |
| 8821                   | 21701                 | 35237             | 0.82                 | 8.9E-01                                       | AF259887.1                  | NT                            | Citrona nana cytochrome-c oxidase subunit I (coxI) gene, partial cds; mitochondrial gene for mitochondrial product   |
| 12080                  | 25060                 | 38766             | 2.72                 | 8.9E-01                                       | AE003944.1                  | NT                            | Xylella fastidiosa, section 60 of 229 of the complete genome   |
| 12423                  | 25300                 | 30786             | 4.02                 | 8.9E-01                                       | AE002188.2                  | NT                            | Chlamydia pneumoniae AR39, section 21 of 84 of the complete genome   |
| 4584                   | 17789                 | 30786             | 2.11                 | 8.8E-01                                       | O268360                     | SWISSPROT                     | PUTATIVE F420-DEPENDENT NADP REDUCTASE   |
| 5489                   | 18938                 | 31706             | 0.68                 | 8.8E-01                                       | AF310617.1                  | NT                            | Pseudorabies virus Ea glycoprotein M gene, complete cds  |
| 7701                   | 20788                 | 34250             | 0.69                 | 8.8E-01                                       | M81182.1                    | NT                            | Homo sapiens peroxisomal 70 kD membrane protein mRNA, complete cds   |
| 10438                  | 23471                 | 37077             | 1.07                 | 8.8E-01                                       | 765978                      | NT                            | Homo sapiens cell death-inducing DFFA-like effector B (CIDEb), mRNA  |
| 11337                  | 24400                 | 38048             | 2.23                 | 8.8E-01                                       | Z28337.1                    | NT                            | M.aeruginosa (HUB 5-2-4) DNA from plasmid PMA1   |
| 12092                  | 25072                 | 38779             | 7.56                 | 8.8E-01                                       | AA808055.1                  | EST_HUMAN                     | cc38h11.s1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:1352037 3' similar to centaine Alu repetitive element; contains element MER22 repetitive element;   |
| 12240                  | 28158                 | 38779             | 2.13                 | 8.8E-01                                       | D60911.1                    | NT                            | Synechocystis sp. PCC6803 complete genome, 13/27, 1576583-1718643  |
| 477                    | 19372                 | 28704             | 2                    | 8.7E-01                                       | AF108833.2                  | NT                            | Homo sapiens SOS1 (SOS1) gene, partial cds   |
| 2475                   | 19502                 | 28727             | 0.98                 | 8.7E-01                                       | 5901893                     | NT                            | Homo sapiens AT-binding transcription factor 1 (ATBF1), mRNA   |
| 2838                   | 16115                 | 28127             | 5.32                 | 8.7E-01                                       | AA596863.1                  | EST_HUMAN                     | nm05f11.s1 NCI_CGAP_P4.1 Homo sapiens cDNA clone IMAGE:1076877   |
| 5120                   | 18246                 |                   | 4.12                 | 8.7E-01                                       | AF121970.1                  | NT                            | Pseudomonas aeruginosa lipotease (top), putative transcriptional regulatory protein OhbR (ohbR), ortho-hatbenzoate 1,2-dioxygenase beta-ISP protein OhbA (ohbA), OhbC (ohbC), ortho-hatbenzoate 1,2-dioxygenase alpha-ISP protein OhbB (ohbB), and put       |
| 8229                   | 21311                 | 34831             | 0.66                 | 8.7E-01                                       | AW697335.1                  | EST_HUMAN                     | RCA-NN0057-120500-013-c07 NN0057 Homo sapiens cDNA   |
| 9130                   | 22209                 | 35752             | 0.66                 | 8.7E-01                                       | AL239456.1                  | EST_HUMAN                     | gh36e03.x1 Scores_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:1846788 3'  |
| 9130                   | 22209                 | 35753             | 0.66                 | 8.7E-01                                       | AL239456.1                  | EST_HUMAN                     | gh36e03.x1 Scores_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:1846788 3'  |
| 9339                   | 22978                 | 38568             | 2.07                 | 8.7E-01                                       | AE004063.1                  | NT                            | Pseudomonas aeruginosa PA01, section 524 of 529 of the complete genome   |
| 10511                  | 23546                 | 37159             | 1.08                 | 8.7E-01                                       | BF670183.1                  | EST_HUMAN                     | 602185541T1 NIH_MGC_45 Homo sapiens cDNA clone IMAGE:4309808 3'  |

Page 34 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 10611                  | 23648                 | 37167             | 1.08                 | 8.7E-01                                       | BF570169.1               | EST_HUMAN                     | 60218554T1 NIH_MGC_45 Homo sapiens cDNA clone IMAGE:4309908 3'   |
| 11070                  | 24145                 | 37782             | 5.87                 | 8.7E-01                                       | BF363970.1               | EST_HUMAN                     | QV0-NIN1021-100800-337-c03 NN1021 Homo sapiens cDNA  |
| 12034                  | 25017                 | 38720             | 3.32                 | 8.7E-01                                       | BF107694.1               | EST_HUMAN                     | 6018223884R1 NIH_MGC_79 Homo sapiens cDNA clone IMAGE:4043584 3'   |
| 12034                  | 25017                 | 38721             | 3.32                 | 8.7E-01                                       | BF107694.1               | EST_HUMAN                     | 6018223884R1 NIH_MGC_79 Homo sapiens cDNA clone IMAGE:4043584 3'   |
| 12862                  | 25940                 |                   | 2.8                  | 8.7E-01                                       | AV681898.1               | EST_HUMAN                     | AV681898 GLC Homo sapiens cDNA clone GLCGY307 3'   |
| 487                    | 13681                 |                   | 2.39                 | 8.6E-01                                       | X17012.1                 | NT                            | Rat IGFBP gene for insulin-like growth factor II   |
| 881                    | 14057                 | 27123             | 3.14                 | 8.6E-01                                       | W68088.1                 | EST_HUMAN                     | z044603.1 Soares_fetal heart N6H19W Homo sapiens cDNA clone IMAGE:343516 5'  |
| 2344                   | 15475                 | 28608             | 1.31                 | 8.6E-01                                       |                          | NT                            | Homo sapiens cytochrome P450, subfamily XXVIIA (steroid 27-hydroxylase, cerebrotendinous xanthomatosis), polypeptide 1 (CYP27A1b) mRNA |
| 3710                   | 16871                 | 28873             | 0.85                 | 8.6E-01                                       | AL161585.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 65  |
| 3901                   | 17060                 | 30059             | 1.31                 | 8.6E-01                                       | U49724.1                 | NT                            | Drosophila melanogaster marlin (Dmerrin) mRNA, complete cds  |
| 6019                   | 19202                 | 32821             | 10.02                | 8.6E-01                                       | X60647.1                 | NT                            | Chicken lipoprotein lipase gene  |
| 6019                   | 19202                 | 32822             | 10.02                | 8.6E-01                                       | X60647.1                 | NT                            | Chicken lipoprotein lipase gene  |
| 6508                   | 25825                 | 33042             | 0.7                  | 8.6E-01                                       | S78772.1                 | NT                            | polyprotein [Cassacke B4 virus GB4, host-mice, E2, originally derived from Edwards CB4 human strain, genomic RNA Complete, 7397 nt]    |
| 6848                   | 20001                 | 33408             | 1.96                 | 8.6E-01                                       | AF143732.1               | NT                            | Gus canadensis recombinant activating protein 1 (RAG-1) gene, partial cds  |
| 6848                   | 20001                 | 33410             | 1.96                 | 8.6E-01                                       | AF143732.1               | NT                            | Gus canadensis recombinant activating protein 1 (RAG-1) gene, partial cds  |
| 7898                   | 20761                 |                   | 0.64                 | 8.6E-01                                       | AE000591.1               | NT                            | Helicobacter pylori 26695 section 69 of 134 of the complete genome   |
| 8112                   | 21194                 |                   | 1.82                 | 8.6E-01                                       | AF001518.1               | NT                            | Bacillus halodurans genome DNA, section 12/14  |
| 8232                   | 21314                 | 34834             | 0.56                 | 8.6E-01                                       | AF077837.1               | NT                            | Drosophila melanogaster collagen response mediator protein (CRMP) mRNA, complete cds   |
| 9887                   | 22027                 |                   | 0.54                 | 8.6E-01                                       | AE000979.1               | NT                            | Archaeoglobus fulgidus section 128 of 172 of the complete genome   |
| 12856                  | 25883                 |                   | 2.11                 | 8.6E-01                                       | AL112162.1               | NT                            | Botrytis cinerea strain T4 cDNA library under conditions of nitrogen deprivation   |
| 2509                   | 15635                 |                   | 1.49                 | 8.5E-01                                       | AL011824.1               | NT                            | Arabidopsis thaliana (ecotype Columbia) sp2 gene, exons 1-6  |
| 6866                   | 20018                 | 33427             | 1.1                  | 8.5E-01                                       | AF185214.1               | NT                            | Bacteriophage D3, complete genome  |
| 7894                   | 20759                 | 34243             | 2.38                 | 8.5E-01                                       | BE642612.1               | EST_HUMAN                     | 601067107F1 NIH_MGC_10 Homo sapiens cDNA clone IMAGE:3435505 5'  |
| 8180                   | 21282                 | 34784             | 0.57                 | 8.5E-01                                       | AL161572.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 68  |
| 8813                   | 21693                 | 36230             | 0.92                 | 8.5E-01                                       | P06801                   | SWISSPROT                     | SEGMENTATION PROTEIN PAIRED  |
| 8613                   | 21693                 | 36231             | 0.92                 | 8.5E-01                                       | P06801                   | SWISSPROT                     | SEGMENTATION PROTEIN PAIRED  |
| 6702                   | 21782                 | 36315             | 0.68                 | 8.5E-01                                       | AL243213.1               | NT                            | Homo sapiens partial 6-HT4 receptor gene, exons 2 to 5   |
| 10558                  | 23593                 | 37198             | 1.49                 | 8.5E-01                                       | AB000798.1               | NT                            | Cyanidium caldarium gene for SlgC, complete cds  |
| 10558                  | 23593                 | 37199             | 1.49                 | 8.5E-01                                       | AB000798.1               | NT                            | Cyanidium caldarium gene for SlgC, complete cds  |
| 12577                  | 25056                 |                   | 5.29                 | 8.5E-01                                       | 11418543                 | NT                            | Homo sapiens human immunodeficiency virus type 1 enhancer-binding protein 1 (HIVEP1), mRNA   |
| 12585                  | 25394                 |                   | 6.39                 | 8.5E-01                                       | 9607008                  | NT                            | Rattus norvegicus protein tyrosine phosphatase, non-receptor type 5 (Ptpn5), mRNA  |
| 4873                   | 18006                 | 30898             | 0.68                 | 8.4E-01                                       | AF083975.2               | NT                            | Fowl adenovirus 8, complete genome   |

Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 5611                   | 25808                 | 31871             | 2.75                 | 8.4E-01                                       | L78728.1                 | NT                            | Human fibroblast growth factor receptor 3 (FGFR3) gene, intron 7  |
| 5611                   | 25808                 | 31872             | 2.75                 | 8.4E-01                                       | L78728.1                 | NT                            | Human fibroblast growth factor receptor 3 (FGFR3) gene, intron 7  |
| 7881                   | 21041                 | 34553             | 0.67                 | 8.4E-01                                       | AF061142.1               | NT                            | Manechea brassicae phenolase binding protein 2 precursor (PBP2) mRNA, complete cds  |
| 10163                  | 23200                 |                   | 3.42                 | 8.4E-01                                       | AJ248287.1               | NT                            | Pyrococcus abyssi complete genome, segment 5/6  |
| 760                    | 13941                 | 26388             | 2.17                 | 8.3E-01                                       | M63437.1                 | NT                            | Thermus thermophilus cytochrome c-552 (cycA) and CycB (cycB) genes, complete cds  |
| 3164                   | 16339                 | 29347             | 3.46                 | 8.3E-01                                       | AL161608.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 18   |
| 3912                   | 17071                 | 30069             | 0.69                 | 8.3E-01                                       | AB010879.1               | NT                            | Nicotiana tabacum mRNA for chloroplast ribosomal protein L10, complete cds  |
| 4120                   | 17274                 | 30273             | 3.17                 | 8.3E-01                                       | Y19177.1                 | NT                            | Streptomyces antibioticus polyketide biosynthetic gene cluster  |
| 6383                   | 16886                 | 31484             | 2.32                 | 8.3E-01                                       | AL161640.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 40   |
| 9870                   | 22910                 |                   | 4                    | 8.3E-01                                       | AJ791952.1               | EST_HUMAN                     | nm011212.6 NCI_C60 Homo sapiens cDNA clone IMAGE:1076495 5' similar to contains THR.L1 THR repetitive element:  |
| 10318                  | 23351                 | 36956             | 1.32                 | 8.3E-01                                       | AF098070.1               | NT                            | Drosophila melanogaster Lis1 homolog mRNA, complete cds   |
| 10423                  | 23458                 | 37063             | 3.9                  | 8.3E-01                                       | AF108133.1               | NT                            | Mus musculus neuro-d4 gene, exons 3 through 12 and partial cds  |
| 10911                  | 23984                 | 37627             | 2.18                 | 8.3E-01                                       | AE000903.1               | NT                            | Methanobacterium thermoautotrophicum from bases 1270510 to 1283409 (section 109 of 149) of the complete genome  |
| 10930                  | 24012                 |                   | 1.65                 | 8.3E-01                                       | Z12472                   | NT                            | Phytophthora infestans mitochondrion, complete genome   |
| 11584                  | 24637                 | 38317             | 9.95                 | 8.3E-01                                       | AF020503.1               | NT                            | Homo sapiens FRA3B common fragile region, diadenosine triphosphate hydrolase (FHIT) gene, exon 5  |
| 2111                   | 16249                 | 28368             | 2.72                 | 8.2E-01                                       | AB000493.1               | NT                            | Rattus norvegicus mRNA for RPHO-1, complete cds   |
| 2158                   | 15282                 |                   | 1.32                 | 8.2E-01                                       | AF145598.1               | NT                            | Mus musculus trophinin (Tm) gene, complete cds  |
| 2744                   | 15861                 |                   | 0.95                 | 8.2E-01                                       | AW376390.1               | EST_HUMAN                     | IL3-CT0219-161198-031-C08 CT0219 Homo sapiens cDNA  |
| 4009                   | 17166                 | 30174             | 0.68                 | 8.2E-01                                       | AB014574.1               | NT                            | Homo sapiens mRNA for KIAA0674 protein, partial cds   |
| 4247                   | 17393                 | 30381             | 0.7                  | 8.2E-01                                       | Z72884.1                 | NT                            | S. cerevisiae chromosome VII reading frame ORF YGL062W  |
| 4247                   | 17393                 | 30382             | 0.7                  | 8.2E-01                                       | Z72884.1                 | NT                            | S. cerevisiae chromosome VII reading frame ORF YGL062W  |
| 5217                   | 18338                 | 31311             | 1.19                 | 8.2E-01                                       | AB000498.1               | NT                            | Rattus norvegicus mRNA for RPHO-1, complete cds   |
| 6781                   | 19336                 | 33332             | 0.69                 | 8.2E-01                                       | X96283.1                 | NT                            | G. gallus mRNA for C-Serrat-1 protein   |
| 6781                   | 19336                 | 33333             | 0.69                 | 8.2E-01                                       | X96283.1                 | NT                            | G. gallus mRNA for C-Serrat-1 protein   |
| 6813                   | 20228                 | 33661             | 0.76                 | 8.2E-01                                       | AJ010142.1               | NT                            | Arenaria muscaria mRNA for SC1125 protein   |
| 7037                   | 20173                 | 33695             | 3.19                 | 8.2E-01                                       | AW376433.1               | EST_HUMAN                     | CH4-HT0243-061198-037-e01 HT0243 Homo sapiens cDNA  |
| 7419                   | 25944                 | 33960             | 4.48                 | 8.2E-01                                       | Z12128.1                 | NT                            | S. cerevisiae MET1, LEU4, and POL1 genes encoding MET14 protein, alpha-isopropylmalate (alpha-IPM) synthetase (partial), and DNA polymerase alpha (partial) |
| 8039                   | 21719                 | 35256             | 0.55                 | 8.2E-01                                       | BE283145.1               | EST_HUMAN                     | 601144885F2 NIH_MGC_19 Homo sapiens cDNA clone IMAGE:3160412 5'   |
| 10231                  | 23268                 | 36856             | 0.81                 | 8.2E-01                                       | AB014630.1               | NT                            | Homo sapiens mRNA for KIAA0690 protein, partial cds   |
| 10264                  | 23269                 | 36897             | 1.51                 | 8.2E-01                                       | AF052858.1               | NT                            | Homo sapiens thiorodotin-related protein mRNA, complete cds   |

### Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 10428                  | 23463                 | 37070             | 0.54                 | 8.2E-01                                       | AF223888.1               | NT                            | Oncorhynchus tshawytscha isolate T-20 somatolactin precursor gene, exon 1  |
| 10428                  | 23463                 | 37071             | 0.54                 | 8.2E-01                                       | AF223888.1               | NT                            | Oncorhynchus tshawytscha isolate T-20 somatolactin precursor gene, exon 1  |
| 10566                  | 23631                 | 37239             | 3.78                 | 8.2E-01                                       | Q8J170                   | SWISSPROT                     | MCKUSICK-KAUFMAN/BARDIET-BIEDL SYNDROMES PUTATIVE CHAPERONIN   |
| 10596                  | 23631                 | 37240             | 3.78                 | 8.2E-01                                       | Q8J170                   | SWISSPROT                     | MCKUSICK-KAUFMAN/BARDIET-BIEDL SYNDROMES PUTATIVE CHAPERONIN   |
| 11942                  | 24628                 | 38631             | 4.72                 | 8.2E-01                                       | L10127.1                 | NT                            | Molluscan contagiosum virus type 1 ORF1 and ORF2 DNA   |
| 12030                  | 25013                 | 38716             | 6.12                 | 8.2E-01                                       | P10363                   | SWISSPROT                     | OVARIAN TUMOR LOCUS PROTEIN  |
| 12035                  | 25018                 | 38722             | 3.97                 | 8.2E-01                                       | H87398.1                 | EST_HUMAN                     | similar to gb:M56072.60S RIBOSOMAL PROTEIN L7A (HUMAN);  |
| 12607                  | 25408                 | 32048             | 3.01                 | 8.2E-01                                       | AJ001261.1               | NT                            | Mus musculus TANK binding kinase TBK1 (Tbk1) mRNA, complete cds  |
| 2817                   | 15361                 | 29723             | 1.38                 | 8.1E-01                                       | AF191839.1               | NT                            | Mus musculus TANK binding kinase TBK1 (Tbk1) mRNA, complete cds  |
| 3547                   | 16712                 | 29723             | 2.77                 | 8.1E-01                                       | AF055068.1               | NT                            | Homo sapiens MHC class 1 region  |
| 3547                   | 16712                 | 29724             | 2.77                 | 8.1E-01                                       | AF055068.1               | NT                            | Homo sapiens MHC class 1 region  |
| 4730                   | 17666                 | 30847             | 0.63                 | 8.1E-01                                       | 4508290                  | NT                            | Homo sapiens protein tyrosine phosphatase, non-receptor type 2 (PTPN2) mRNA  |
| 5825                   | 19015                 | 32321             | 0.63                 | 8.1E-01                                       | Q01727                   | SWISSPROT                     | MELANOCYTE STIMULATING HORMONE RECEPTOR (MSHR) (MELANOTROPIN RECEPTOR)   |
| 6445                   | 19612                 | 32975             | 0.89                 | 8.1E-01                                       | U16790.1                 | NT                            | (MELANOCORTIN-1 RECEPTOR) (MC1-R)  |
| 6759                   | 19915                 | 33309             | 2.17                 | 8.1E-01                                       | Q13491                   | SWISSPROT                     | Mus musculus putative collagen alpha-2 (X) chain (COL11A2) gene, partial cds   |
| 6769                   | 19915                 | 33310             | 2.17                 | 8.1E-01                                       | Q13491                   | SWISSPROT                     | NEURONAL MEMBRANE GLYCOPROTEIN M8-B  |
| 7681                   | 20746                 | 34227             | 0.7                  | 8.1E-01                                       | Q47477                   | SWISSPROT                     | NEURONAL MEMBRANE GLYCOPROTEIN M8-B  |
|                        |                       |                   |                      |   |                          |                               | CYTOCHROME B   |
|                        |                       |                   |                      |   |                          |                               | Drosophila melanogaster putative inorganic phosphate cotransporter (Pfoot) gene, partial cds; putative sodium channel (Nech) and putative amylase-related protein (Amyrel) genes, complete cds; and putative acetylcholinesterase (Ache) gene, partial cds |
| 8095                   | 21177                 | 34693             | 1.1                  | 8.1E-01                                       | AF022713.2               | NT                            | Drosophila melanogaster putative inorganic phosphate cotransporter (Pfoot) gene, partial cds; putative sodium channel (Nech) and putative amylase-related protein (Amyrel) genes, complete cds; and putative acetylcholinesterase (Ache) gene, partial cds |
| 8095                   | 21177                 | 34694             | 1.1                  | 8.1E-01                                       | AF022713.2               | NT                            | Drosophila melanogaster putative inorganic phosphate cotransporter (Pfoot) gene, partial cds; putative sodium channel (Nech) and putative amylase-related protein (Amyrel) genes, complete cds; and putative acetylcholinesterase (Ache) gene, partial cds |
| 8808                   | 21887                 | 36428             | 0.91                 | 8.1E-01                                       | AP001517.1               | NT                            | Bacillus halodurans genomic DNA, section 11/14   |
| 8808                   | 21887                 | 36429             | 0.91                 | 8.1E-01                                       | AP001517.1               | NT                            | Bacillus halodurans genomic DNA, section 11/14   |
|                        |                       |                   |                      |   |                          |                               | Enriched protein (gpr) gene, partial cds   |
| 8969                   | 22048                 | 36591             | 1.14                 | 8.1E-01                                       | AW242847.1               | EST_HUMAN                     | PROBABLE E4 PROTEIN  |
| 10330                  | 23365                 | 36974             | 0.59                 | 8.1E-01                                       | P06425                   | SWISSPROT                     | KX3872F Human fetal heart, Lambda ZAP Express Homo sapiens cDNA clone IMAGE:262165 5' similar to   |
| 10823                  | 23667                 | 37267             | 0.52                 | 8.1E-01                                       | N94541.1                 | EST_HUMAN                     | EST(GLOME C-0FE11)   |
| 10796                  | 23802                 |                   | 0.54                 | 8.1E-01                                       | AE001226.1               | NT                            | Trepurana pallidum section 42 of 87 of the complete genome   |

Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 11772                  | 24764                 | 38459             | 2.62                 | 8.1E-01                                       | BE938558.1               | EST_HUMAN                     | RCO-TN0080-220800-025-410 TN0080 Homo sapiens cDNA   |
| 11772                  | 24764                 | 38460             | 2.62                 | 8.1E-01                                       | BE938558.1               | EST_HUMAN                     | RCO-TN0080-220800-025-410 TN0080 Homo sapiens cDNA   |
| 12803                  | 26221                 | 32102             | 2.22                 | 8.1E-01                                       | AE001711.1               | NT                            | Thermotoga maritima section 23 of 136 of the complete genome                               |
| 181                    | 13404                 |                   | 2.02                 | 8.0E-01                                       | AJ271510.1               | NT                            | Staphylococcus aureus partial pla gene for phosphate acetyltransferase allele 15           |
| 289                    | 13516                 | 28649             | 10.2                 | 8.0E-01                                       | AJ132772.1               | NT                            | Bos taurus tub and rif genes   |
| 2003                   | 16233                 |                   | 1.95                 | 8.0E-01                                       | BE530982.1               | EST_HUMAN                     | 602072473F1 NCI_CGAP_Bim7 Homo sapiens cDNA clone IMAGE:4215091 5'                         |
| 3146                   | 16322                 | 28334             | 1.32                 | 8.0E-01                                       | AF127897.1               | NT                            | Salmonella typhimurium serovar enteritidis phage type 4 phage protein, partial cds         |
| 3387                   | 16557                 | 28572             | 1.29                 | 8.0E-01                                       | AB006183.1               | NT                            | Mus musculus gene for ovalbumin glycoprotein, complete cds                                 |
| 4655                   | 17791                 | 30775             | 6.77                 | 8.0E-01                                       | X83738.2                 | NT                            | G.gallus mRNA for nicotinic acetylcholine receptor (nAChR) beta 3 subunit                  |
| 5086                   | 18224                 | 31196             | 1                    | 8.0E-01                                       | 7657382                  | NT                            | Mus musculus myosin IXb (Myo9b), mRNA  |
| 8179                   | 21261                 |                   | 2.68                 | 8.0E-01                                       | AW901489.1               | EST_HUMAN                     | RCO-NM1012-270300-021-408 NM1012 Homo sapiens cDNA   |
| 8722                   | 21802                 | 35338             | 1.21                 | 8.0E-01                                       | Y11035.1                 | NT                            | Rice stripe virus RNA 3'   |
| 10836                  | 23669                 |                   | 0.48                 | 8.0E-01                                       | BE583328.1               | EST_HUMAN                     | QV3-OT0085-280800-250-c08 OT0085 Homo sapiens cDNA   |
| 10827                  | 23680                 | 37483             | 0.48                 | 8.0E-01                                       | AB045587.1               | NT                            | Gallus gallus PPAR gamma mRNA for peroxisome proliferator-activated receptor, complete cds |
| 11198                  | 24287                 | 37602             | 1.43                 | 8.0E-01                                       | Q62783                   | SWISSPROT                     | CREB-BINDING PROTEIN   |
| 468                    | 13681                 | 28697             | 0.75                 | 7.9E-01                                       | DT1476.1                 | NT                            | Lymnaea dispar nuclear polyhedrosis virus gene for DNA polymerase, complete cds            |
| 793                    | 13915                 |                   | 0.92                 | 7.9E-01                                       | AE002130.1               | NT                            | Ureaplasma urealyticum section 31 of 59 of the complete genome                             |
| 1635                   | 14787                 |                   | 28.32                | 7.9E-01                                       | AB040885.1               | NT                            | Homo sapiens mRNA for KIAA1452 protein, partial cds  |
| 1887                   | 14839                 |                   | 1.06                 | 7.9E-01                                       | U32739.1                 | NT                            | Haemophilus influenzae Rd section 54 of 163 of the complete genome                         |
| 2337                   | 15468                 | 28603             | 9.03                 | 7.9E-01                                       | AB004816.1               | NT                            | Cryptosporidium parvum mRNA for mitsugumin29, complete cds                                 |
| 2338                   | 15469                 | 28604             | 4.11                 | 7.9E-01                                       | AF130459.1               | NT                            | Danio rerio Trp4-associated protein Tap1A (tap1A) mRNA, complete cds                       |
| 3805                   | 16769                 | 28784             | 3.57                 | 7.9E-01                                       | AF228684.1               | NT                            | Gallus gallus SOX8 transcription factor (SOX8) mRNA, complete cds                          |
| 4416                   | 17557                 |                   | 0.87                 | 7.9E-01                                       | BE263612.1               | EST_HUMAN                     | 601192033F1 NIH_MGC_7 Homo sapiens cDNA clone IMAGE:3635785 5'                             |
| 4734                   | 17869                 | 30852             | 0.84                 | 7.9E-01                                       | 6753749                  | NT                            | Mus musculus embigin (Emb), mRNA   |
| 4734                   | 17869                 | 30853             | 0.84                 | 7.9E-01                                       | 6753749                  | NT                            | Mus musculus embigin (Emb), mRNA   |
| 5210                   | 18331                 |                   | 0.68                 | 7.9E-01                                       | 6753753                  | NT                            | Mus musculus embigin homolog (Drosophila) (Emh), mRNA                                      |
| 5235                   | 18357                 | 31325             | 0.93                 | 7.9E-01                                       | Z47210.1                 | NT                            | S.pneumoniae dexB, cap3A, cap3B and cap3C genes and orfs                                   |
| 5235                   | 18357                 | 31326             | 0.93                 | 7.9E-01                                       | Z47210.1                 | NT                            | S.pneumoniae dexB, cap3A, cap3B and cap3C genes and orfs                                   |
| 5283                   | 18402                 |                   | 0.68                 | 7.9E-01                                       | AF138718.1               | NT                            | Chryseobacterium indologenes peritrophin-48 precursor, gene, complete cds                  |
| 6475                   | 19042                 | 33003             | 0.68                 | 7.9E-01                                       | D38145.1                 | NT                            | Human mRNA for prostacyclin synthase, complete cds   |
| 8300                   | 21362                 | 34603             | 2.66                 | 7.9E-01                                       | X80898.1                 | NT                            | P. sativum GR gene   |
| 9747                   | 22811                 | 36890             | 3.24                 | 7.9E-01                                       | U01012.1                 | NT                            | Giardia lamblia variant-specific surface protein G3M-B (vspG3M-B) mRNA, partial cds        |
| 10265                  | 23230                 | 36887             | 5.43                 | 7.9E-01                                       | PF19719                  | SWISSPROT                     | SMALL HYDROPHOBIC PROTEIN  |
| 10286                  | 23331                 | 36884             | 1.17                 | 7.9E-01                                       | AV700860.1               | EST_HUMAN                     | AV700860 GK Homo sapiens cDNA clone GKCDRE12 3'  |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 10729                  | 23762                 | 37369             | 0.78                 | 7.9E-01                                       | AB000631.1               | NT                            | Streptococcus mutans DNA for sigma 42 protein, cTDP-4-hydro-L-rhamnose reductase, complete cds   |
| 10845                  | 23878                 | 37498             | 0.61                 | 7.9E-01                                       | P16305                   | SWISSPROT                     | DYNEIN HEAVY CHAIN (DYHC)  |
| 11259                  | 24325                 |                   | 1.75                 | 7.8E-01                                       | 7682471                  | NT                            | Homo sapiens KIAA1072 protein (KIAA1072), mRNA   |
| 11487                  | 24546                 | 38218             | 1.94                 | 7.8E-01                                       | P19022                   | SWISSPROT                     | NEURAL-CADHERIN PRECURSOR (N-CADHERIN)   |
| 889                    | 14074                 |                   | 1.49                 | 7.8E-01                                       | Z43785.1                 | EST_HUMAN                     | HSC1K-H041 normalized infant brain cDNA Homo sapiens cDNA clone c-1k104  |
| 2349                   | 15480                 | 28612             | 6.99                 | 7.8E-01                                       | AW659567.1               | EST_HUMAN                     | EST371637 MAGE resequences, MAGF Homo sapiens cDNA   |
| 4823                   | 17956                 | 30942             | 0.73                 | 7.8E-01                                       | U87305.1                 | NT                            | Rattus norvegicus transmembrane receptor Uhc5f11 mRNA, complete cds  |
| 5149                   | 18271                 |                   | 0.89                 | 7.8E-01                                       | AW753353.1               | EST_HUMAN                     | RC3-CT0254-130100-023-c02 CT0254 Homo sapiens cDNA   |
| 6194                   | 18370                 | 32721             | 2.28                 | 7.8E-01                                       | AF115856.1               | NT                            | Sphenodon punctatus alpha endolase mRNA, partial cds   |
| 6348                   | 19518                 | 32876             | 2.28                 | 7.8E-01                                       | P05231                   | SWISSPROT                     | INTERLEUKIN-6 PRECURSOR (IL-6) (B-CELL STIMULATORY FACTOR 2) (BSF-2) (INTERFERON BETA-2) (HYBRIDOMA GROWTH FACTOR)   |
| 6691                   | 19761                 | 33136             | 0.84                 | 7.8E-01                                       | AL445066.1               | NT                            | Thermoplasma acidophilum complete genome, segment 4/5  |
| 8898                   | 21768                 | 35299             | 1.13                 | 7.8E-01                                       | BF106927.1               | EST_HUMAN                     | 715405x1 Soares NSF F8_gW_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:3525178 3'  |
| 9434                   | 22508                 | 36074             | 1.53                 | 7.8E-01                                       | Y10159.1                 | NT                            | D.discoideum recGAP gene   |
| 9633                   | 22688                 | 36170             | 0.56                 | 7.8E-01                                       | 4826873                  | NT                            | Homo sapiens nucleoporin 214kD (CAN) (NUP214), mRNA  |
| 10329                  | 23364                 |                   | 1.28                 | 7.8E-01                                       | Q25452                   | SWISSPROT                     | MUSCLE CALCIUM CHANNEL ALPHA-1 SUBUNIT (MOL-ALPHA1)  |
| 12571                  | 28033                 |                   | 1.82                 | 7.8E-01                                       | L28260.1                 | NT                            | Arabidopsis thaliana 1-aminino-1-cyclopropanecarboxylate synthase (ACS5) gene, complete cds  |
| 146                    | 13371                 | 28403             | 5.78                 | 7.7E-01                                       | AF184345.1               | NT                            | Lycopodium obscurum ADP-glucose pyrophosphorylase large subunit (AGP-L1) mRNA, complete cds  |
| 744                    | 13925                 |                   | 1.72                 | 7.7E-01                                       | AF050157.1               | NT                            | Mus musculus major histocompatibility locus class II region: major histocompatibility protein class II alpha chain (IiAalpha) and major histocompatibility protein class II beta chain (IiBeta) genes, complete cds; butyrophilin-like (NCG), butyrophilin-II> |
| 2776                   | 15992                 | 28003             | 1.34                 | 7.7E-01                                       | O33916                   | SWISSPROT                     | CITRATE SYNTHASE   |
| 3438                   | 16806                 |                   | 0.88                 | 7.7E-01                                       | 8393408                  | NT                            | Homo sapiens UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylglucosaminyltransferase 7 (GALNAC-T7) (GALNAC-T7), mRNA  |
| 3689                   | 16851                 | 29859             | 3.96                 | 7.7E-01                                       | AF118085.1               | NT                            | Homo sapiens PRO1975 mRNA, complete cds  |
| 4516                   | 17655                 | 30643             | 3.38                 | 7.7E-01                                       | AF199488.1               | NT                            | Colurix columix japonica sub-species japonica beta-actin mRNA, partial cds   |
| 4516                   | 17655                 | 30644             | 3.38                 | 7.7E-01                                       | AF199488.1               | NT                            | Colurix columix japonica sub-species japonica beta-actin mRNA, partial cds   |
| 5678                   | 18872                 | 32169             | 1.38                 | 7.7E-01                                       | P16653                   | SWISSPROT                     | RAFFINOSE INVERTASE (INVERTASE)  |
| 6078                   | 18872                 | 32160             | 1.39                 | 7.7E-01                                       | P16653                   | SWISSPROT                     | RAFFINOSE INVERTASE (INVERTASE)  |
| 6076                   | 19258                 | 32587             | 1.41                 | 7.7E-01                                       | R08900.1                 | EST_HUMAN                     | y246492.1 Soares fetal liver spleen (NFLS Homo sapiens cDNA clone IMAGE:127755 3'  |
| 10049                  | 23087                 | 36689             | 0.88                 | 7.7E-01                                       | AB021134.1               | NT                            | Daphnia magna hemoglobin gene cluster (dhb3, dhb1 and dhb2 genes), complete cds  |
| 12452                  | 25317                 |                   | 7.14                 | 7.7E-01                                       | 11497821                 | NT                            | Archaeoglobus fulgidus, complete genome  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 6224                   | 19399                 | 32748             | 5.26                 | 7.9E-01                                       | AF059510.1               | NT                            | Arabidopsis thaliana 3-methylcrotonyl-CoA carboxylase non-biotinylated subunit (MCCB) mRNA, complete cds  |
| 6224                   | 19399                 | 32749             | 5.26                 | 7.9E-01                                       | AF059510.1               | NT                            | Arabidopsis thaliana 3-methylcrotonyl-CoA carboxylase non-biotinylated subunit (MCCB) mRNA, complete cds  |
| 6847                   | 19808                 | 33193             | 0.66                 | 7.9E-01                                       | P37838                   | SWISSPROT                     | MATING-TYPE PROTEIN A-ALPHA Z4  |
| 6900                   | 19509                 | 31601             | 0.74                 | 7.9E-01                                       | AJ253390.1               | EST_HUMAN                     | eq14b12.x1 Stanley Frontal NS pool 2 Homo sapiens cDNA clone IMAGE:2030878  |
| 6900                   | 19509                 | 31628             | 0.74                 | 7.9E-01                                       | AJ253390.1               | EST_HUMAN                     | eq14b12.x1 Stanley Frontal NS pool 2 Homo sapiens cDNA clone IMAGE:2030878  |
| 7198                   | 20061                 | 33472             | 0.84                 | 7.9E-01                                       | U72487.1                 | NT                            | Rattus norvegicus calcium-independent alpha-latrotoxin receptor mRNA, complete cds  |
| 8255                   | 21337                 | 34955             | 1.54                 | 7.9E-01                                       | AF146783.2               | NT                            | Mus musculus neuromedin U precursor (Nmu) gene, partial cds; iPLP (Tphlp) gene, partial cds; CLOCK (Clock) gene, complete cds; PFT27 (Pft27) gene, complete cds; and H5AR (H5ar) gene, complete cds |
| 8318                   | 21400                 | 34624             | 2.38                 | 7.9E-01                                       | 6857752                  | NT                            | Mus musculus actinin (Admi-pending), mRNA   |
| 8318                   | 21400                 | 34925             | 2.38                 | 7.9E-01                                       | 6857762                  | NT                            | Mus musculus actinin (Admi-pending), mRNA   |
| 8520                   | 21601                 | 35137             | 0.53                 | 7.9E-01                                       | Q01098                   | SWISSPROT                     | GLUTAMATE (NMDA) RECEPTOR SUBUNIT EPSILON 3 PRECURSOR (N-METHYL D-ASPARTATE RECEPTOR SUBTYPE 2C) (NR2C) (NMDAR2C)   |
| 8520                   | 21601                 | 35198             | 0.53                 | 7.9E-01                                       | Q01098                   | SWISSPROT                     | GLUTAMATE (NMDA) RECEPTOR SUBUNIT EPSILON 3 PRECURSOR (N-METHYL D-ASPARTATE RECEPTOR SUBTYPE 2C) (NR2C) (NMDAR2C)   |
| 9187                   | 22245                 | 36789             | 1.33                 | 7.9E-01                                       | 6753577                  | NT                            | Mus musculus cytochrome P450, 2b9, phenobarbital inducible, type a (Cyp2b9), mRNA   |
| 9479                   | 22536                 | 36100             | 5.24                 | 7.9E-01                                       | P30372                   | SWISSPROT                     | MUSCARINIC ACETYLCHOLINE RECEPTOR M2  |
| 9479                   | 22536                 | 36101             | 5.24                 | 7.9E-01                                       | P30372                   | SWISSPROT                     | MUSCARINIC ACETYLCHOLINE RECEPTOR M2  |
| 11639                  | 24719                 | 38411             | 2.29                 | 7.9E-01                                       | X86347.1                 | NT                            | H. aspersa mRNA for neurofilament NF70  |
| 11639                  | 24719                 | 38412             | 2.29                 | 7.9E-01                                       | X86347.1                 | NT                            | H. aspersa mRNA for neurofilament NF70  |
| 12010                  | 24995                 |                   | 2.78                 | 7.9E-01                                       | AL161692.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 88   |
| 12203                  | 25157                 |                   | 8.21                 | 7.9E-01                                       | AB020702.1               | NT                            | Homo sapiens mRNA for KIAA0895 protein, partial cds   |
| 526                    | 13719                 |                   | 1.31                 | 7.9E-01                                       | AL163301.2               | NT                            | Homo sapiens chromosome 21 segment HS21C101   |
| 597                    | 13787                 | 28807             | 1.08                 | 7.9E-01                                       | AF020503.1               | NT                            | Homo sapiens FRA3B common fragile region, diadenosine triphosphate hydrolase (FHT) gene, exon 5   |
| 7690                   | 20765                 | 34240             | 0.8                  | 7.9E-01                                       | AF052730.1               | NT                            | Drosophila melanogaster tyrosine kinase receptor protein (eph) mRNA, complete cds   |
| 12521                  | 25354                 |                   | 5.2                  | 7.9E-01                                       | AF163151.2               | NT                            | Homo sapiens dentin sialophosphoprotein precursor (DSPP) gene, complete cds   |
| 1154                   | 14918                 | 27372             | 1.61                 | 7.4E-01                                       | AJ598146.1               | EST_HUMAN                     | tr14b08.x1 NCJ_CGAP_Bn25-Homo sapiens cDNA clone IMAGE:2167577 3' similar to contains Alu repetitive element; contains element MIR repetitive element;  |
| 2419                   | 15548                 | 28078             | 0.97                 | 7.4E-01                                       | AB011108.1               | NT                            | Homo sapiens mRNA for KIAA0534 protein, partial cds   |
| 3820                   | 16980                 | 29883             | 0.97                 | 7.4E-01                                       | AF112538.1               | NT                            | Malva pusilla actin (Act1) mRNA, complete cds   |

Page 40 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 4010                   | 17167                 | 30175             | 0.71                 | 7.4E-01                                       | AF133310.1               | NT                            | Vibrio cholerae phage CTXphi Calcutta-rsR-e (rsR-e) and Calcutta-rsR-b (rsR-b) genes, complete cds   |
| 4429                   | 17559                 | 30551             | 8.12                 | 7.4E-01                                       | AL163246.2               | NT                            | Homo sapiens chromosome 21 segment HS21C046  |
| 8027                   | 21110                 | 34628             | 1.25                 | 7.4E-01                                       | AL161551.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 51  |
| 8027                   | 21110                 | 34628             | 1.25                 | 7.4E-01                                       | AL161551.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 51  |
| 8834                   | 21913                 | 35451             | 1.01                 | 7.4E-01                                       | BF346268.1               | EST_HUMAN                     | 602018455F1 NCI_CGAP_Bim67 Homo sapiens cDNA clone IMAGE:4154340 5'  |
| 8910                   | 21889                 |                   | 1.45                 | 7.4E-01                                       | U87980.1                 | NT                            | Rattus norvegicus leukocyte common antigen receptor (LAR) gene, trans-spliced alternative untranslated exon  |
| 9288                   | 22374                 | 35925             | 6.88                 | 7.4E-01                                       | BE747503.1               | EST_HUMAN                     | 601673026F1 NIH_MGC_9 Homo sapiens cDNA clone IMAGE:3834174 5'   |
| 9357                   | 22432                 | 36890             | 1.24                 | 7.4E-01                                       | AA187988.1               | EST_HUMAN                     | z667H01.s1 Strategene endothelial cell 937223 Homo sapiens cDNA clone IMAGE:625297 3' similar to SW:TCPO_MOUSE_P42832 T-COMPLEX PROTEIN 1, THETA SUBUNIT ; |
| 10813                  | 22847                 | 37256             | 0.7                  | 7.4E-01                                       | 11424033                 | NT                            | Homo sapiens NY-REN-45 antigen (LOC511133), mRNA   |
| 12170                  | 25133                 |                   | 3.89                 | 7.4E-01                                       | 6763217                  | NT                            | Mus musculus complement component 1 inhibitor (C1inh), mRNA  |
| 12287                  | 25213                 |                   | 1.7                  | 7.4E-01                                       | A472841.1                | EST_HUMAN                     | 1a13h01.x1 NCI_CGAP_Lym6 Homo sapiens cDNA clone IMAGE:3043885 3'  |
| 4083                   | 17238                 |                   | 0.73                 | 7.3E-01                                       | AP000062.1               | NT                            | Aeropyrum pernix genomic DNA, section 57   |
| 4738                   | 17873                 | 30866             | 0.8                  | 7.3E-01                                       | AE001168.1               | NT                            | Borrelia burgdorferi (section 52 of 70) of the complete genome   |
| 4822                   | 17955                 | 30941             | 2.38                 | 7.3E-01                                       | AF225421.1               | NT                            | Homo sapiens HT017 mRNA, complete cds  |
| 6741                   | 18897                 | 33287             | 5.6                  | 7.3E-01                                       | L35772.1                 | NT                            | Mus musculus antigen (CD72) gene   |
| 6741                   | 18897                 | 33288             | 5.6                  | 7.3E-01                                       | L35772.1                 | NT                            | Mus musculus antigen (CD72) gene   |
| 7243                   | 23941                 | 33771             | 0.93                 | 7.3E-01                                       | AJ011418.1               | NT                            | Lycopodium obscurum mRNA for ubiquitin activating enzyme   |
| 7617                   | 20387                 | 34163             | 0.69                 | 7.3E-01                                       | Z14133.1                 | NT                            | D.melanogaster Crc mRNA for clathrin heavy chain   |
| 7718                   | 20782                 | 34268             | 7.25                 | 7.3E-01                                       | M28511.1                 | NT                            | V.alginolyticus sucrase (scrB) gene, complete cds  |
| 7718                   | 20782                 | 34269             | 7.25                 | 7.3E-01                                       | M28511.1                 | NT                            | V.alginolyticus sucrase (scrB) gene, complete cds  |
| 11714                  | 24754                 | 39448             | 3.29                 | 7.3E-01                                       | AA678018.1               | EST_HUMAN                     | z25508.s1 Soares_fetal_liver_spleen_1INFLS S1 Homo sapiens cDNA clone IMAGE:431769 3'  |
| 11714                  | 24754                 | 39449             | 3.29                 | 7.3E-01                                       | AA678018.1               | EST_HUMAN                     | z25508.s1 Soares_fetal_liver_spleen_1INFLS S1 Homo sapiens cDNA clone IMAGE:431799 3'  |
| 854                    | 14031                 |                   | 1.98                 | 7.2E-01                                       | L28281.1                 | NT                            | Rattus norvegicus initiation factor-2 kinase (elf-2a) mRNA, complete cds   |
| 2012                   | 15152                 | 28257             | 3.43                 | 7.2E-01                                       | X79140.1                 | NT                            | N.tetrahymena NaIF-4A13 mRNA   |
| 2532                   | 15557                 | 28781             | 1.96                 | 7.2E-01                                       | AB009805.1               | NT                            | Gallus gallus gene for melanocortin 2-receptor, complete cds   |
| 3135                   | 16311                 | 29323             | 1.27                 | 7.2E-01                                       | AF108100.1               | NT                            | Fowlpox virus, complete genome   |
| 3541                   | 16706                 | 29717             | 2.36                 | 7.2E-01                                       | AF065606.1               | NT                            | Giardia intestinalis variant-specific surface protein (vsp417-6) gene, vsp417-6/A-1 allele, complete cds   |
| 3702                   | 16863                 | 29866             | 1.35                 | 7.2E-01                                       | AB002307.1               | NT                            | Human mRNA for KIAA0308 gene, partial cds  |
| 3975                   | 17132                 | 30136             | 1.57                 | 7.2E-01                                       | BF338350.1               | EST_HUMAN                     | 60203559F1 NCI_CGAP_Bim64 Homo sapiens cDNA clone IMAGE:4183222 5'   |
| 4173                   | 17323                 |                   | 0.73                 | 7.2E-01                                       | AF108083.1               | NT                            | Homo sapiens IA-2 gene, intron 18  |

Page 41 of 550  
Table 4  
Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 4882                   | 18022                 | 31007             | 2.68                 | 7.2E-01                                       | D90314.1                 | NT                            | Lmesenteroides gene for sucrose phosphorylase (EC 2.4.1.7)  |
| 5225                   | 18347                 | 31317             | 1.07                 | 7.2E-01                                       | AF198778.1               | NT                            | Homo sapiens transcription factor IGF-1M enhancer 3, JM11 protein, JM4 protein, JM5 protein, T54 protein, JM10 protein, A4 differentiation-dependent protein, triple LIM domain protein 6, and synaptophysin genes, complete cds; and L-type calcium channel $\alpha$ |
| 5225                   | 18347                 | 31318             | 1.07                 | 7.2E-01                                       | AF198779.1               | NT                            | Homo sapiens transcription factor IGF-1M enhancer 3, JM11 protein, JM4 protein, JM5 protein, T54 protein, JM10 protein, A4 differentiation-dependent protein, triple LIM domain protein 6, and synaptophysin genes, complete cds; and L-type calcium channel $\alpha$ |
| 5308                   | 18425                 | 31396             | 0.65                 | 7.2E-01                                       | AL191593.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 63   |
| 7382                   | 20441                 | 33903             | 0.59                 | 7.2E-01                                       | U89033.1                 | NT                            | Solanum tuberosum cold-stress inducible protein (C17) gene, complete cds  |
| 8848                   | 21728                 | 35285             | 1.31                 | 7.2E-01                                       | AF236091.1               | NT                            | Oryctolagus cuniculus RING-finger binding protein mRNA, partial cds   |
| 9163                   | 22241                 | 37437             | 0.64                 | 7.2E-01                                       | AV743773.1               | EST_HUMAN                     | AV743773 CB Homo sapiens cDNA clone CBMAFD08 5'   |
| 10548                  | 23383                 | 37192             | 2.25                 | 7.2E-01                                       | BF870091.1               | EST_HUMAN                     | 602118381F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:4275331 5'   |
| 10977                  | 24098                 | 37690             | 3.26                 | 7.2E-01                                       | U82823.1                 | NT                            | Rattus norvegicus cytochrome mRNA, complete cds   |
| 12530                  | 18491                 | 31530             | 1.51                 | 7.2E-01                                       | U02568.1                 | NT                            | Dictyocaulus viviparus nematode polypeptide precursor (DvA) mRNA, complete cds  |
| 12737                  | 25488                 |                   | 4.37                 | 7.2E-01                                       | AF000063.1               | NT                            | Aeropyrum pernix genomic DNA, section 8/7   |
| 12784                  | 26073                 |                   | 1.46                 | 7.2E-01                                       | Y10168.1                 | NT                            | B. thuringiensis PK1 & cap genes, putative  |
| 710                    | 13882                 | 28928             | 11.37                | 7.1E-01                                       | D21070.1                 | NT                            | Rana catesbeiana mRNA for bullfrog skeletal muscle calcium release channel (ryanodine receptor) alpha isoform (RyR1), complete cds  |
| 3130                   | 16306                 | 28320             | 16.1                 | 7.1E-01                                       | AJ270777.1               | NT                            | Homo sapiens partial TCF-4 gene for T-cell transcription factor-4, exons 15-16  |
| 4324                   | 17467                 | 30453             | 3.07                 | 7.1E-01                                       | 7305360                  | NT                            | Mus musculus atgaglin (Otag), mRNA  |
| 4324                   | 17467                 | 30454             | 3.07                 | 7.1E-01                                       | 7305360                  | NT                            | Mus musculus atgaglin (Otag), mRNA  |
| 6089                   | 18251                 | 32578             | 1.73                 | 7.1E-01                                       | BF881034.1               | EST_HUMAN                     | 602155438F1 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:4298344 5'   |
| 6089                   | 18251                 | 32580             | 1.73                 | 7.1E-01                                       | BF881034.1               | EST_HUMAN                     | 602155438F1 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:4298344 5'   |
| 7088                   | 20182                 | 33606             | 6.48                 | 7.1E-01                                       | U36232.1                 | NT                            | Drosophila melanogaster 6-pyruvyltetrahydropterin synthase (pr) gene, complete cds  |
| 8834                   | 22013                 | 35552             | 1.12                 | 7.1E-01                                       | BE074185.1               | EST_HUMAN                     | RC1-BT0567-301289-011-409 BT0567 Homo sapiens cDNA  |
| 8834                   | 22013                 | 35553             | 1.12                 | 7.1E-01                                       | BE074185.1               | EST_HUMAN                     | RC1-BT0567-301289-011-409 BT0567 Homo sapiens cDNA  |
| 10059                  | 23097                 | 36700             | 1.6                  | 7.1E-01                                       | BE004405.1               | EST_HUMAN                     | 601496330F1 NIH_MGC_70 Homo sapiens cDNA clone IMAGE:3898498 5'   |
| 10821                  | 23655                 | 37286             | 1.1                  | 7.1E-01                                       | IM12981.1                | NT                            | Human T-cell receptor gamma chain c2 gene   |
| 12505                  | 25955                 |                   | 2.04                 | 7.1E-01                                       | AA421492.1               | EST_HUMAN                     | z08h11.s1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:731109 3'   |
| 1257                   | 14415                 | 27479             | 0.95                 | 7.0E-01                                       | AB014514.1               | NT                            | Homo sapiens mRNA for KIAA0614 protein, partial cds   |
| 1257                   | 14415                 | 27480             | 0.95                 | 7.0E-01                                       | AB014514.1               | NT                            | Homo sapiens mRNA for KIAA0614 protein, partial cds   |
| 2521                   | 15847                 | 28770             | 1.28                 | 7.0E-01                                       | NE2412.1                 | EST_HUMAN                     | yc73e07.s1 Soares_multiple_sclerosis_2NIH-MSP Homo sapiens cDNA clone IMAGE:288708 3' similar to contains Alu repetitive element  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 2621                   | 16947                 | 28771             | 1.29                 | 7.0E-01                                       | N82412.1                 | EST_HUMAN                     | y273e07.s1 Soares_multiple_sclerosis_2Nbt-HMSP Homo sapiens cDNA clone IMAGE:288708 3' similar to contains Alu repetitive element           |
| 5189                   | 18291                 |                   | 2.32                 | 7.0E-01                                       | AL163301.2               | NT                            | Homo sapiens chromosome 21 segment HS21C101   |
| 6073                   | 19255                 |                   | 0.89                 | 7.0E-01                                       | AB021316.1               | NT                            | Arabidopsis thaliana mRNA for chlorophyll b synthase, complete cds  |
| 8573                   | 21654                 |                   | 6.52                 | 7.0E-01                                       | AE000253.1               | NT                            | Escherichia coli K-12 MG1635 section 143 of 400 of the complete genome  |
| 9517                   | 22592                 | 39150             | 0.98                 | 7.0E-01                                       | U63888.1                 | NT                            | Clostridium acetobutylicum mannitol-specific phosphotransferase system (PTS) system, mtlA, mtlR, mtlF, and mtlD genes, complete cds         |
| 9517                   | 22592                 | 39150             | 0.98                 | 7.0E-01                                       | U63888.1                 | NT                            | Clostridium acetobutylicum mannitol-specific phosphotransferase system (PTS) system, mtlA, mtlR, mtlF, and mtlD genes, complete cds         |
| 11382                  | 24443                 | 38102             | 1.47                 | 7.0E-01                                       | AV763942.1               | EST_HUMAN                     | AV763942 MDS Homo sapiens cDNA clone MDSCH-E04 5'   |
| 11382                  | 24443                 | 38103             | 1.47                 | 7.0E-01                                       | AV763942.1               | EST_HUMAN                     | AV763942 MDS Homo sapiens cDNA clone MDSCH-E04 5'   |
| 13133                  | 25907                 | 31772             | 1.47                 | 7.0E-01                                       | 9630464                  | NT                            | Bacteriophage N15 virion, complete genome   |
| 992                    | 14164                 | 27224             | 6.3                  | 6.9E-01                                       | U69874.1                 | NT                            | Candida albicans squalene epoxidase (CAERG1) gene, complete cds and translational regulator gene, partial cds                               |
| 992                    | 14164                 | 27225             | 6.3                  | 6.9E-01                                       | U69874.1                 | NT                            | Candida albicans squalene epoxidase (CAERG1) gene, complete cds and translational regulator gene, partial cds                               |
| 1338                   | 14495                 | 27585             | 2.91                 | 6.9E-01                                       | AA593530.1               | EST_HUMAN                     | nm28a08.s1 NCI_CGAP_Gas1 Homo sapiens cDNA clone IMAGE:1085176 3'   |
| 3291                   | 16485                 | 29484             | 1.71                 | 6.9E-01                                       | AE002271.2               | NT                            | Chlamydia muridarum, section 3 of 85 of the complete genome   |
| 3531                   | 16636                 | 29707             | 16.79                | 6.9E-01                                       | Y17373.1                 | NT                            | Mus musculus mRNA for immunoglobulin gamma heavy chain variable region, isolate PC 2811   |
| 5311                   | 18428                 | 31398             | 97.22                | 6.9E-01                                       | BE782751.1               | EST_HUMAN                     | 601465694F1 NIH_MGC 67 Homo sapiens cDNA clone IMAGE:3888943 5'   |
| 5902                   | 19091                 | 32405             | 0.82                 | 6.9E-01                                       | AB035682.1               | NT                            | Branchiostoma belcheri BnNA3 mRNA for notochord actin, complete cds   |
| 6112                   | 19292                 | 32627             | 0.85                 | 6.9E-01                                       | Y18278.1                 | NT                            | Drosophila melanogaster mRNA for A-kinase anchor protein DAKAP550, partial  |
| 6500                   | 19886                 | 33029             | 1.12                 | 6.9E-01                                       | BE296188.1               | EST_HUMAN                     | 601177333F1 NIH_MGC 17 Homo sapiens cDNA clone IMAGE:3532328 5'   |
| 7979                   | 21028                 | 34542             | 0.99                 | 6.9E-01                                       | AF248963.1               | NT                            | Strongylocentrotus purpuratus myosin V, complete cds  |
| 8168                   | 21250                 | 34789             | 2.94                 | 6.9E-01                                       | AL161573.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 89   |
| 8168                   | 21250                 | 34770             | 2.94                 | 6.9E-01                                       | AL161573.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 89   |
| 9372                   | 22447                 |                   | 0.86                 | 6.9E-01                                       | AF118048.1               | NT                            | Erioseba dispar cation transporting ATPase (atpase) gene, partial cds   |
| 9806                   | 22936                 | 36520             | 0.56                 | 6.9E-01                                       | AF206319.1               | NT                            | Musa acuminata peckate lyase 1 (PL1) mRNA, complete cds   |
| 9898                   | 22936                 | 36521             | 0.56                 | 6.9E-01                                       | AF206319.1               | NT                            | Musa acuminata peckate lyase 1 (PL1) mRNA, complete cds   |
| 10619                  | 23653                 | 37263             | 0.78                 | 6.9E-01                                       | BF242367.1               | EST_HUMAN                     | 601880680F1 NIH_MGC 55 Homo sapiens cDNA clone IMAGE:4109419 5'   |
| 11538                  | 24592                 | 38268             | 2.11                 | 6.9E-01                                       | D88013.1                 | NT                            | Homo sapiens DAN gene, complete cds   |
| 11538                  | 24592                 | 38269             | 2.11                 | 6.9E-01                                       | D88013.1                 | NT                            | Homo sapiens DAN gene, complete cds   |
| 12146                  | 25949                 |                   | 3.77                 | 6.9E-01                                       | Q90968                   | SWISSPROT                     | FORK-HEAD BOX PROTEIN C2 (FORK-HEAD-RELATED PROTEIN FKHL14) (MESENCHYME FORK HEAD PROTEIN 1) (MFI-1 PROTEIN) (TRANSCRIPTION FACTOR FKHL-14) |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 979                    | 14162                 | 27212             | 1.94                 | 6.8E-01                                       | AF017784.1               | NT                            | Giardia intestinalis carbamate kinase gene, complete cds   |
| 2739                   | 15956                 |                   | 1.41                 | 6.8E-01                                       | D80917.1                 | NT                            | Synchytrium sp. PCC6803 complete genome, 27/27, 3418552-3573470  |
| 2890                   | 14788                 | 27883             | 1.43                 | 6.8E-01                                       | AA854473.1               | EST_HUMAN                     | q776a05.s1 Soares_papillary_tumor_NHHPA Homo sapiens cDNA clone IMAGE:1402256 3' similar to gb:U59411.1_m1 ALCOHOL DEHYDROGENASE CLASS II PI CHAIN (HUMAN);  |
| 4894                   | 17829                 | 30815             | 1.32                 | 6.8E-01                                       | J00762.1                 | NT                            | Rat(hooded) prolactin gene: exon III and flanks  |
| 4980                   | 18109                 | 31085             | 0.62                 | 6.8E-01                                       | 4758521                  | NT                            | Homo sapiens hevin (H-EVIN) mRNA   |
| 8838                   | 22678                 | 38460             | 1.06                 | 6.8E-01                                       | AB037788.1               | NT                            | Homo sapiens mRNA for KIAA1346 protein, partial cds  |
| 10567                  | 23802                 |                   | 5.72                 | 6.8E-01                                       | AA687838.1               | EST_HUMAN                     | nt13607.s1 NCL CGAP_P22 Homo sapiens cDNA clone IMAGE:1220100 3' similar to gb:X13546_m1   |
| 11344                  | 24407                 | 38056             | 2.4                  | 6.8E-01                                       | AJ276573.1               | NT                            | Human HMG-17 gene for non-histone chromosomal protein (HUMAN);   |
| 11344                  | 24407                 | 38057             | 2.4                  | 6.8E-01                                       | AJ276573.1               | NT                            | Stagonospora avenae bgf1 gene for beta-glucosidase, exons 1-4  |
| 11378                  | 24437                 | 38056             | 1.91                 | 6.8E-01                                       | AF038030.1               | NT                            | Stagonospora avenae bgf1 gene for beta-glucosidase, exons 1-4  |
| 11378                  | 24437                 | 38057             | 1.91                 | 6.8E-01                                       | AF038030.1               | NT                            | Mus musculus zinc finger protein (Peg3) mRNA, complete cds   |
| 11579                  | 24033                 | 36312             | 1.57                 | 6.8E-01                                       | AF104151.1               | NT                            | Mus musculus zinc finger protein (Peg3) mRNA, complete cds   |
| 11806                  | 24883                 | 38584             | 1.97                 | 6.8E-01                                       | AF110520.1               | NT                            | Anopheles gambiae strain M2 translation initiation factor 4C (1A) (cif-4C) mRNA, complete cds  |
| 11806                  | 24883                 | 38585             | 1.97                 | 6.8E-01                                       | AF110520.1               | NT                            | Mus musculus major histocompatibility complex region NG27, NG28, RPS28, NADH oxidoreductase, NG28, KIFC1, Fas-binding protein, BING1, tapasin, RafGDS-like, KE2, BING4, beta 1,3-galactosyl transferase, and RPS18 genes, complete cds; Sacm21 gene, partial |
| 309                    | 13525                 | 28559             | 30.38                | 6.7E-01                                       | AF213894.1               | NT                            | Mus musculus major histocompatibility complex region NG27, NG28, RPS28, NADH oxidoreductase, NG28, KIFC1, Fas-binding protein, BING1, tapasin, RafGDS-like, KE2, BING4, beta 1,3-galactosyl transferase, and RPS18 genes, complete cds; Sacm21 gene, partial |
| 349                    | 13590                 | 28588             | 26.24                | 6.7E-01                                       | AF213894.1               | NT                            | Homo sapiens nuclear factor of kappa light polypeptide gene enhancer in B-cells 1 (NFKB1) gene, complete cds   |
| 1861                   | 15104                 |                   | 1.14                 | 6.7E-01                                       | M12132.1                 | NT                            | Homo sapiens nuclear factor of kappa light polypeptide gene enhancer in B-cells 1 (NFKB1) gene, complete cds   |
| 2214                   | 15348                 | 28477             | 1.98                 | 6.7E-01                                       | AA451894.1               | EST_HUMAN                     | Qual fast skeletal muscle troporin I gene, complete cds  |
| 2235                   | 16058                 | 28498             | 5.16                 | 6.7E-01                                       | AF196073.1               | NT                            | zrl2g12.s1 Soares_total_fetus_Nb2HF8_gw Homo sapiens cDNA clone IMAGE:786310 3' similar to contains element TAR1 repetitive element;   |
| 3060                   | 16238                 | 28256             | 5.81                 | 6.7E-01                                       | 6878580                  | NT                            | Drosophila melanogaster Nts85C gene, complete cds; NMDMC isoform (Nmdmc) gene, complete cds, alternatively spliced; and transcription factor (Relish) gene, complete cds, alternatively spliced  |
| 4575                   | 17712                 | 30898             | 0.62                 | 6.7E-01                                       | X74421.1                 | NT                            | Mus musculus Wislott-Aldrich syndrome protein (Wasp), mRNA   |
| 5628                   | 18820                 | 31894             | 1.44                 | 6.7E-01                                       | J04836.1                 | NT                            | S. tuberosum mRNA for glucose-6-phosphate dehydrogenase  |
| 6628                   | 18820                 | 31895             | 1.44                 | 6.7E-01                                       | J04836.1                 | NT                            | M. berkeri ATPase alpha and beta subunit (atpA and atpB) genes, complete cds   |

Table 4  
Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 6083                   | 19286                 | 32984             | 0.79                 | 6.7E-01                                       | AE001488.1               | NT                            | Helicobacter pylori, strain J99 section 47 of 132 of the complete genome   |
| 6453                   | 19820                 | 32983             | 1.3                  | 6.7E-01                                       | 9635035                  | NT                            | Gallid herpesvirus 2, complete genome  |
| 6453                   | 19820                 | 32984             | 1.3                  | 6.7E-01                                       | 9635035                  | NT                            | Gallid herpesvirus 2, complete genome  |
| 6754                   | 19910                 | 33304             | 0.59                 | 6.7E-01                                       | BE960241.2               | EST_HUMAN                     | 601660177R1 NIH_MGC_71 Homo sapiens cDNA clone IMAGE:3905778 3'  |
| 6754                   | 19910                 | 33305             | 0.59                 | 6.7E-01                                       | BE960241.2               | EST_HUMAN                     | 601660177R1 NIH_MGC_71 Homo sapiens cDNA clone IMAGE:3905778 3'  |
| 7488                   | 20543                 |                   | 3.97                 | 6.7E-01                                       | AE004606.1               | NT                            | Pseudomonas aeruginosa PA01, section 167 of 529 of the complete genome   |
| 7488                   | 20570                 | 34042             | 0.94                 | 6.7E-01                                       | AE001488.1               | NT                            | Helicobacter pylori, strain J99 section 47 of 132 of the complete genome   |
| 10348                  | 23383                 |                   | 1.01                 | 6.7E-01                                       | M34048.1                 | NT                            | Human placental protein 14 (PP14) gene, complete cds   |
| 11198                  | 24265                 | 37900             | 2.08                 | 6.7E-01                                       | BF354649.1               | EST_HUMAN                     | CM3-H10769-010600-197-c03 H10769 Homo sapiens cDNA   |
| 11746                  | 23932                 | 37958             | 2.75                 | 6.7E-01                                       | O14357                   | SWISSPROT                     | N-ACETYLGLUCOSAMINYL-PHOSPHATIDYLINOSITOL BIOSYNTHETIC PROTEIN GPII  |
| 11959                  | 24944                 | 38949             | 2.48                 | 6.7E-01                                       | AA342521.1               | EST_HUMAN                     | EST48068 Fetal spleen Homo sapiens cDNA 3' and   |
| 2570                   | 15685                 | 28819             | 0.97                 | 6.8E-01                                       | AF076240.1               | NT                            | Homo sapiens SLIT1 protein (SLIT2) mRNA, partial cds   |
| 2765                   | 15880                 | 28989             | 1.13                 | 6.8E-01                                       | AF188339.1               | NT                            | Homo sapiens lens epithelium-derived growth factor gene, alternatively spliced, complete cds   |
| 3578                   | 16743                 | 29760             | 1.16                 | 6.8E-01                                       | 4506880                  | NT                            | Homo sapiens aema domain, seven thrombospondin repeats (type 1 and type 1-like), transmembrane domain (TM) and short cytoplasmic domain, (sensaphorin) 6A (SEMA5A) mRNA                  |
| 3748                   | 16909                 | 29913             | 4.58                 | 6.8E-01                                       | Y07689.1                 | NT                            | C. albicans random DNA marker, 282bp   |
| 4226                   | 17373                 |                   | 2.48                 | 6.8E-01                                       | U91328.1                 | NT                            | Human hereditary haemochromatosis region, histone 2A-like protein gene, hereditary haemochromatosis (H1A-H) gene, RoRet gene, and sodium phosphate transporter (NPT3) gene, complete cds |
| 6462                   | 19829                 | 32990             | 3.82                 | 6.8E-01                                       | 9680577                  | NT                            | Mus musculus kinesin light chain 2 (Klc2), mRNA  |
| 7272                   | 20355                 | 33808             | 0.82                 | 6.8E-01                                       | AE004458.1               | NT                            | Pseudomonas aeruginosa PA01, section 19 of 529 of the complete genome  |
| 7272                   | 20355                 | 33809             | 0.82                 | 6.8E-01                                       | AE004458.1               | NT                            | Pseudomonas aeruginosa PA01, section 19 of 529 of the complete genome  |
| 7862                   | 20916                 | 34421             | 3.7                  | 6.8E-01                                       | AV680506.1               | EST_HUMAN                     | AV680506 GLC Homo sapiens cDNA clone GLCID04 3'  |
| 8764                   | 21843                 | 35384             | 0.58                 | 6.8E-01                                       | AV704700.1               | EST_HUMAN                     | AV704700 ADB Homo sapiens cDNA clone ADBCAF11 5'   |
| 9886                   | 22905                 |                   | 2.34                 | 6.8E-01                                       | AL163278.2               | NT                            | Homo sapiens chromosome 21 segment HS21C078  |
| 10207                  | 23243                 |                   | 0.51                 | 6.8E-01                                       | AU118188.1               | EST_HUMAN                     | AU118188 HEMBA1 Homo sapiens cDNA clone HEMBA1003079 5'  |
| 640                    | 13825                 | 26948             | 2.02                 | 6.8E-01                                       | M75140.1                 | NT                            | H. vulgaris Na,K-ATPase alpha subunit mRNA, complete cds   |
| 640                    | 13825                 | 26949             | 2.02                 | 6.8E-01                                       | M75140.1                 | NT                            | H. vulgaris Na,K-ATPase alpha subunit mRNA, complete cds   |
| 3519                   | 19895                 | 28998             | 5.5                  | 6.8E-01                                       | AB041225.1               | NT                            | Mus musculus gene for Tob2, complete cds   |
| 4148                   | 17300                 | 30282             | 1.73                 | 6.8E-01                                       | 4504632                  | NT                            | Homo sapiens Interleukin 10 receptor, alpha (IL10RA) mRNA  |
| 4397                   | 17540                 | 30521             | 7.71                 | 6.8E-01                                       | AJ272265.1               | NT                            | Homo sapiens SPP2 gene for secreted phosphoprotein 24 precursor, exons 1-8   |
| 5174                   | 18298                 | 31268             | 2.88                 | 6.8E-01                                       | U29921.1                 | NT                            | Phaseolus vulgaris ATPase gamma subunit mRNA, nuclear gene encoding mitochondrial protein, partial cds   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 5559                   | 25907                 | 31795             | 1.86                 | 6.5E-01                                       | P18480                   | SWISSPROT                     | TRANSCRIPTION REGULATORY PROTEIN SNF5 (SWISNF COMPLEX COMPONENT SNF5)  |
| 6865                   | 20017                 | 33426             | 1.3                  | 6.9E-01                                       | D88348.1                 | NT                            | Chicken mRNA for 115-kDa melanocortin matrix protein, complete cds   |
| 7760                   | 20810                 | 34309             | 0.74                 | 6.5E-01                                       | X04789.1                 | NT                            | Murine Ig-related lambs 50) gene (exon 1) transcribed selectively in pre-B lymphocytes   |
| 7846                   | 20901                 | 34404             | 0.59                 | 6.5E-01                                       | AJ789882.1               | EST_HUMAN                     | wc46s02.x1 NCI CGAP_P728 Homo sapiens cDNA clone IMAGE:2321042 3'  |
| 10042                  | 23080                 |                   | 0.86                 | 6.5E-01                                       | T78804.1                 | EST_HUMAN                     | yc21b04.s1 Soares fetal liver spleen 1NLS Homo sapiens cDNA clone IMAGE:108847 3'  |
| 10542                  | 23577                 | 37186             | 2.53                 | 6.5E-01                                       | AF119876.1               | NT                            | Mus musculus small GTP-binding protein RAB25 (Rab25) gene, complete cds  |
| 10689                  | 23954                 | 37563             | 2.55                 | 6.5E-01                                       | H67583.1                 | EST_HUMAN                     | yr17706.r1 Soares_placenta_8to8weeks_2NblHP8c-9W Homo sapiens cDNA clone IMAGE:282515 5'   |
| 10926                  | 24008                 | 37643             | 2.08                 | 6.5E-01                                       | AA601287.1               | EST_HUMAN                     | no15c07.s1 NCI CGAP_Phe1 Homo sapiens cDNA clone IMAGE:1100748 3'  |
| 11030                  | 24109                 |                   | 3.38                 | 6.5E-01                                       | AU138078.1               | EST_HUMAN                     | AU138078 PLACE1 Homo sapiens cDNA clone PLACE1007810 5'  |
| 11869                  | 24887                 | 38388             | 5.43                 | 6.5E-01                                       | AF014115.1               | NT                            | Plasmodium berghei cytochrome c oxidase subunit iii, cytochrome c oxidase subunit i, and cytochrome b genes, mitochondrial genes encoding mitochondrial proteins, complete cds |
| 12566                  | 25386                 |                   | 8.69                 | 6.5E-01                                       | BE465030.1               | EST_HUMAN                     | hm74a10.x1 NCI CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3179130 3'  |
| 12840                  | 25689                 |                   | 3.83                 | 6.5E-01                                       | Z74145.1                 | NT                            | S.cerevisiae chromosome IV reading frame ORF YDL087c   |
| 262                    | 13481                 | 26613             | 8.59                 | 6.4E-01                                       | U48948.1                 | NT                            | Drosophila melanogaster 8kd dydin light chain mRNA, complete cds   |
| 3545                   | 16710                 | 28721             | 4.42                 | 6.4E-01                                       | U48954.2                 | NT                            | Mus musculus dydroglycan 1 (DAG1) gene, exons 1 and 2 and complete cds   |
| 3984                   | 17122                 | 30126             | 1.46                 | 6.4E-01                                       | AB046827.1               | NT                            | Homo sapiens mRNA for KIAA1607 protein, partial cds  |
| 4614                   | 17751                 | 30731             | 0.74                 | 6.4E-01                                       | Y12488.1                 | NT                            | M.musculus whn gene  |
| 4614                   | 17751                 | 30732             | 0.74                 | 6.4E-01                                       | Y12488.1                 | NT                            | M.musculus whn gene  |
| 8812                   | 21891                 | 35432             | 1.58                 | 6.4E-01                                       | AE001247.1               | NT                            | Trichonema pallidum section 63 of 87 of the complete genome  |
| 10221                  | 23257                 |                   | 0.5                  | 6.4E-01                                       | 11418320                 | NT                            | Homo sapiens hypothetical protein FLJ10140 (FLJ10140), mRNA  |
| 10294                  | 23329                 | 36633             | 7.31                 | 6.4E-01                                       | U82828.1                 | NT                            | Homo sapiens ataxia telangiectasia (ATM) gene, complete cds  |
| 10309                  | 23344                 | 36949             | 1.31                 | 6.4E-01                                       | BF670405.1               | EST_HUMAN                     | 602150239F1 NIH_MGC_81 Homo sapiens cDNA clone IMAGE:4291128 5'  |
| 12693                  | 25461                 |                   | 19.53                | 6.4E-01                                       | AV75212.1                | EST_HUMAN                     | AV75212 MDS Homo sapiens cDNA clone MDSG3C09 5'  |
| 447                    | 13643                 | 26682             | 3.76                 | 6.3E-01                                       | P05228                   | SWISSPROT                     | HISTIDINE-RICH PROTEIN PRECURSOR (CLONE PHRP-III)  |
| 548                    | 13741                 | 26765             | 1.85                 | 6.3E-01                                       | U32689.1                 | NT                            | Haemophilus influenzae Rd section 4 of 163 of the complete genome  |
| 2230                   | 15364                 | 28493             | 3.29                 | 6.3E-01                                       | U91138.1                 | NT                            | Shigella flexneri multi-antigen resistance locus   |
| 2646                   | 15769                 | 28684             | 3.65                 | 6.3E-01                                       | U75331.1                 | NT                            | Gallus gallus bone morphogenetic protein 1 (BMP1) mRNA, partial cds  |
| 2646                   | 15769                 | 28685             | 3.65                 | 6.3E-01                                       | U75331.1                 | NT                            | Gallus gallus bone morphogenetic protein 1 (BMP1) mRNA, partial cds  |
| 3081                   | 16257                 |                   | 0.93                 | 6.3E-01                                       | Y17275.1                 | NT                            | Lycopodium obscurum p8a gene, complete CDS   |
| 6189                   | 19365                 | 32713             | 0.84                 | 6.3E-01                                       | BE038908.1               | EST_HUMAN                     | PMD-BT0757-010500-002-405 BT0757 Homo sapiens cDNA   |
| 6733                   | 19889                 | 33281             | 1.01                 | 6.3E-01                                       | L27788.1                 | NT                            | Streptococcus dysgalactiae (mag) gene, complete cds  |
| 6733                   | 19889                 | 33282             | 1.01                 | 6.3E-01                                       | L27788.1                 | NT                            | Streptococcus dysgalactiae (mag) gene, complete cds  |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 8718                   | 21798                 |                   | 3.44                 | 6.3E-01                                       | BE002044.1               | EST_HUMAN                     | 601676888F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:368351 5'  |
| 9087                   | 22166                 | 35712             | 0.78                 | 6.3E-01                                       | S92927.1                 | NT                            | glycoprotein Ila (Alu 1 and 3 fusion junction) [human, Genomic Mutant, 300 nt]  |
| 9421                   | 22495                 | 36062             | 0.65                 | 6.3E-01                                       | BF216984.1               | EST_HUMAN                     | 601894050F1 NIH_MGC_67 Homo sapiens cDNA clone IMAGE:4102898 5'   |
| 9620                   | 22675                 | 36245             | 3.14                 | 6.3E-01                                       | 9827521                  | NT                            | Varidola virus, complete genome   |
| 9620                   | 22675                 | 36246             | 3.14                 | 6.3E-01                                       | 9827521                  | NT                            | Varidola virus, complete genome   |
| 10142                  | 23180                 |                   | 0.68                 | 6.3E-01                                       | AE002329.2               | NT                            | Chlamydia muridarum, section 69 of 86 of the complete genome  |
| 10641                  | 23675                 | 37285             | 1.58                 | 6.3E-01                                       | Z73003.1                 | NT                            | S. cerevisiae chromosome VII reading frame ORF YGR218w  |
| 10747                  | 23780                 | 37393             | 1                    | 6.3E-01                                       | AE000313.1               | NT                            | Escherichia coli K-12 MG1685 section 203 of 400 of the complete genome  |
| 10781                  | 23814                 |                   | 0.48                 | 6.3E-01                                       | AW765395.1               | EST_HUMAN                     | PMO-UM0018-130500-003-g12 UM0018 Homo sapiens cDNA  |
| 11315                  | 24379                 | 38024             | 1.78                 | 6.3E-01                                       | AA877716.1               | EST_HUMAN                     | nt03108.61 NCI_CGAP_Cor10 Homo sapiens cDNA clone IMAGE:1161371 3' similar to TR:O02816 O02816  |
| 11620                  | 24571                 | 38359             | 6.18                 | 6.3E-01                                       | A904160.1                | EST_HUMAN                     | HLARK :   |
| 11709                  | 24749                 | 38442             | 1.55                 | 6.3E-01                                       | P47003                   | SWISSPROT                     | OM-BTD43-060290-046 BT043 Homo sapiens cDNA   |
| 11888                  | 24878                 | 38573             | 2.12                 | 6.3E-01                                       | P36073                   | SWISSPROT                     | HYPOTHETICAL 13.7 KD PROTEIN IN INO1-IDS2 INTERGENIC REGION   |
| 12086                  | 25088                 | 38772             | 1.47                 | 6.3E-01                                       | 6838361                  | NT                            | HYPOTHETICAL 15.3 KD PROTEIN IN VMA12-APN1 INTERGENIC REGION  |
| 12262                  | 26130                 | 31546             | 15.92                | 6.3E-01                                       | 9810293                  | NT                            | Beta vulgaris mitochondrion, complete genome  |
| 12358                  | 25257                 |                   | 1.6                  | 6.3E-01                                       | AF106227.1               | NT                            | Mus musculus keratin complex 2, gene 5g (Krt2-6g), mRNA   |
| 12682                  | 26029                 |                   | 4.27                 | 6.3E-01                                       | X85528.1                 | NT                            | Homo sapiens 3'-phosphoadenosine 5'-phosphosulfate synthetase (PAPSS) mRNA, complete cds  |
| 5891                   | 18178                 | 32497             | 2.15                 | 6.2E-01                                       | Q10135                   | SWISSPROT                     | C. limicola pscD gene   |
| 7684                   | 20731                 |                   | 3.59                 | 6.2E-01                                       | AF072253.1               | NT                            | HYPOTHETICAL 142.6 KD PROTEIN C23E2.02 IN CHROMOSOME 1  |
| 7715                   | 25852                 | 34288             | 1.16                 | 6.2E-01                                       | AL021127.2               | NT                            | Mus musculus calcium-sensing receptor related protein 4 (CaSR-r4) mRNA, partial cds   |
| 8497                   | 21578                 | 35114             | 4.67                 | 6.2E-01                                       | HT7295.1                 | EST_HUMAN                     | Mus musculus chromosome X contigA; putative Magee8 gene, Cattractin, NAD(P) steroid dehydrogenase and Zinc finger protein 185   |
| 9057                   | 22138                 | 35881             | 0.7                  | 6.2E-01                                       | AF034411.1               | NT                            | ys01608.61 Soares fetal liver spleen 1NFSL Homo sapiens cDNA clone IMAGE:213542 3'  |
| 8648                   | 21091                 | 34606             | 1.47                 | 6.2E-01                                       | BE562887.1               | EST_HUMAN                     | Lycopodium obscurum cytosolic Cu,Zn superoxide dismutase (Sod) gene, partial cds; and dehydroquinase dehydrogenase-shikimate:NADP oxidoreductase gene, complete cds   |
| 9710                   | 22769                 |                   | 2.56                 | 6.2E-01                                       | M24461.1                 | NT                            | 601336146F1 NIH_MGC_44 Homo sapiens cDNA clone IMAGE:3680010 5'   |
| 10283                  | 23318                 | 35919             | 6.83                 | 6.2E-01                                       | AL161511.2               | NT                            | Human pulmonary surfactant-associated protein SP-B (SFTPB) mRNA, complete cds   |
| 10426                  | 23481                 | 37087             | 0.63                 | 6.2E-01                                       | 11420783                 | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 23   |
| 10428                  | 23491                 | 37088             | 0.63                 | 6.2E-01                                       | 11420783                 | NT                            | Homo sapiens potassium voltage-gated channel, Shab-related subfamily, member 1 (KCMB1), mRNA  |
| 10758                  | 23789                 | 37405             | 5.75                 | 6.2E-01                                       | P27410                   | SWISSPROT                     | Homo sapiens potassium voltage-gated channel, Shab-related subfamily, member 1 (KCMB1), mRNA<br>NON-STRUCTURAL POLYPEPTIDE [CONTAINS: RNA-DIRECTED RNA POLYMERASE; THIOL<br>PROTEINASE P3C; HELICASE (2C LIKE PROTEIN); COAT PROTEIN] |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 10758                  | 23789                 | 37406             | 5.75                 | 6.2E-01                                       | P27410                   | SWISSPROT                     | NON-STRUCTURAL POLYPROTEIN [CONTAINS: RNA-DIRECTED RNA POLYMERASE ; THIOL<br>PROTEASE P3C ; HELICASE (2C LIKE PROTEIN); COAT PROTEIN]  |
| 2468                   | 15595                 |                   | 0.27                 | 6.1E-01                                       | 6678070                  | NT                            | Mus musculus secreted acidic cysteine rich glycoprotein (Sparc), mRNA  |
| 5653                   | 18847                 | 32129             | 1.33                 | 6.1E-01                                       | M53940.1                 | NT                            | Ceanothus americanus N2 CcMyoD (hlt-1) alternatively spliced genes, complete cds   |
| 7009                   | 20146                 | 33584             | 3.4                  | 6.1E-01                                       | M64733.1                 | NT                            | Rat TRPM-2 gene, complete cds  |
| 7009                   | 20146                 | 33565             | 3.4                  | 6.1E-01                                       | M64733.1                 | NT                            | Rat TRPM-2 gene, complete cds  |
| 7160                   | 20283                 | 33736             | 0.67                 | 6.1E-01                                       | AW105553.1               | EST_HUMAN                     | cd55h03.x1 NCL CGAP_Ov23 Homo sapiens cDNA clone IMAGE:2597237 3' similar to gbcX12871_mai<br>HETEROGENEOUS NUCLEAR RIBONUCLEOPROTEIN A1 (HUMAN);<br>SUSHI REPEAT-CONTAINING PROTEIN SRPX PRECURSOR (DRS PROTEIN) (DOWN-REGULATED<br>BY V-SRC) |
| 7254                   | 20337                 | 33787             | 0.69                 | 6.1E-01                                       | Q63769                   | SWISSPROT                     | Arabidopsis thaliana putative zinc transporter (ZIP1) mRNA, complete cds   |
| 8428                   | 21509                 | 35041             | 3.47                 | 6.1E-01                                       | AF033535.1               | NT                            | Homo sapiens mitogen-activated protein kinase kinase kinase 4 (MAP4K4), mRNA   |
| 8695                   | 22074                 | 35812             | 1.51                 | 6.1E-01                                       | 11431065                 | NT                            | Homo sapiens mitogen-activated protein kinase kinase kinase 4 (MAP4K4), mRNA   |
| 8695                   | 22074                 | 35813             | 1.51                 | 6.1E-01                                       | 11431066                 | NT                            | Homo sapiens G-protein coupled receptor EDG-7 mRNA, complete cds   |
| 9615                   | 22670                 | 36239             | 20.44                | 6.1E-01                                       | AF236117.1               | NT                            | Homo sapiens G-protein coupled receptor EDG-7 mRNA, complete cds   |
| 9615                   | 22670                 | 36240             | 20.44                | 6.1E-01                                       | AF236117.1               | NT                            | Homo sapiens G-protein coupled receptor EDG-7 mRNA, complete cds   |
| 10047                  | 23085                 | 36588             | 1.05                 | 6.1E-01                                       | AE004462.1               | NT                            | Pseudomonas aeruginosa PA01, section 13 of 529 of the complete genome  |
| 10262                  | 23287                 | 36883             | 0.92                 | 6.1E-01                                       | AF119117.1               | NT                            | Homo sapiens dopamine transporter (SLC6A3) gene, complete cds  |
| 10833                  | 23868                 | 37489             | 0.47                 | 6.1E-01                                       | AF026883.1               | NT                            | Sus scrofa neural cell adhesion molecule (NCAM) gene, 3' UTR and microsatellite repeat region  |
| 12033                  | 25016                 | 38719             | 1.77                 | 6.1E-01                                       | S83182.1                 | NT                            | hyaluronan-binding protein-hepatocyte growth factor activator homolog [human, plasma, mRNA, 2408 nt]   |
| 12033                  | 25016                 | 38719             | 1.77                 | 6.1E-01                                       | S83182.1                 | NT                            | hyaluronan-binding protein-hepatocyte growth factor activator homolog [human, plasma, mRNA, 2408 nt]   |
| 19062                  | 25695                 |                   | 1.16                 | 6.1E-01                                       | X95287.1                 | NT                            | M. maris orfA, orfB, and orfC of archaeal ABC-transporter system   |
| 507                    | 13701                 | 26730             | 1.79                 | 6.0E-01                                       | D87676.1                 | NT                            | Homo sapiens DNA for amyloid precursor protein, complete cds   |
| 576                    | 13767                 |                   | 4.74                 | 6.0E-01                                       | 5802698                  | NT                            | Homo sapiens adaptor-related protein complex 3, mu 2 subunit (CLA20), mRNA   |
| 1393                   | 14547                 | 27823             | 1.83                 | 6.0E-01                                       | AF065263.1               | NT                            | Human respiratory syncytial virus strain CH-89-53b attachment protein (G) gene, complete cds   |
| 3917                   | 17076                 | 30073             | 0.87                 | 6.0E-01                                       | AJ233393.1               | NT                            | Viral hemorrhagic septicemia virus N, P, M, G, N, L genes, French strain 07-71   |
| 4305                   | 17448                 |                   | 1.26                 | 6.0E-01                                       | AF058895.1               | NT                            | Homo sapiens Notch3 (NOTCH3) gene, exons 26, 27, and 28  |
| 5095                   | 18697                 | 31567             | 1.98                 | 6.0E-01                                       | P20288                   | SWISSPROT                     | D(2) DOPAMINE RECEPTOR   |
| 5555                   | 18753                 | 31791             | 2.5                  | 6.0E-01                                       | AW139713.1               | EST_HUMAN                     | UHR-BT-aab-e-10-QUL.s1 NCL CGAP_Sub3 Homo sapiens cDNA clone IMAGE:2718619 3'  |
| 6669                   | 19828                 | 33216             | 2.74                 | 6.0E-01                                       | U38813.1                 | NT                            | Musca domestica insecticide-susceptible strain voltage-sensitive sodium channel mRNA, complete cds   |
| 6800                   | 19865                 | 33355             | 0.98                 | 6.0E-01                                       | Q04912                   | SWISSPROT                     | MACROPHAGE-STIMULATING PROTEIN RECEPTOR PRECURSOR (MSP RECEPTOR) (P185-RON)<br>(CDW138) (CD138 ANTIGEN)  |

Page 48 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 6855                   | 20268                 | 33705             | 0.77                 | 6.0E-01                                       | L10234.1                 | NT                            | Strongylocentrotus purpuratus kinesin light chain isoform 2 mRNA, complete cds                                |
| 6855                   | 20268                 | 33706             | 0.77                 | 6.0E-01                                       | L10234.1                 | NT                            | Strongylocentrotus purpuratus kinesin light chain isoform 2 mRNA, complete cds                                |
| 7509                   | 20583                 | 34050             | 0.49                 | 6.0E-01                                       | AJ277061.1               | NT                            | Homo sapiens partial LMO1 gene for LIM domain only 1 protein, exon 1  |
| 8315                   | 21307                 | 34922             | 4.15                 | 6.0E-01                                       | P02835                   | SWISSPROT                     | SEGMENTATION PROTEIN FUSHI TARAZU   |
| 8315                   | 21307                 | 34923             | 4.15                 | 6.0E-01                                       | P02835                   | SWISSPROT                     | SEGMENTATION PROTEIN FUSHI TARAZU   |
| 10028                  | 23058                 | 36884             | 1.57                 | 6.0E-01                                       | AB008193.1               | NT                            | Homo sapiens genes for leucotriene B4 receptor BLT2, leucotriene B4 receptor BLT1, complete cds               |
| 10480                  | 23515                 |                   | 1.04                 | 6.0E-01                                       | Q01497                   | SWISSPROT                     | PEROXISOMAL MEMBRANE PROTEIN PEROXIN-3  |
| 10594                  | 23628                 |                   | 0.61                 | 6.0E-01                                       | BE83778.1                | EST_HUMAN                     | RC2-FN0094-190700-017-c08 FN0094 Homo sapiens cDNA  |
| 11312                  | 24376                 | 38021             | 1.38                 | 6.0E-01                                       | AJ131892.1               | NT                            | Gallus gallus mRNA for Hyperion protein, 419 kD isoform   |
| 11312                  | 24376                 | 38022             | 1.38                 | 6.0E-01                                       | AJ131892.1               | NT                            | Gallus gallus mRNA for Hyperion protein, 419 kD isoform   |
| 11846                  | 24835                 | 38528             | 2.74                 | 6.0E-01                                       | A1420623.1               | EST_HUMAN                     | ff0807 x1 NC1_CGAP_P128 Homo sapiens cDNA clone IMAGE:2085621 3'  |
| 12053                  | 25440                 | 32052             | 2.05                 | 6.0E-01                                       | 11421693                 | NT                            | Homo sapiens nuclear factor (erythroid-derived 2)-like 3 (NFE2L3), mRNA                                       |
| 12781                  | 25523                 |                   | 1.46                 | 6.0E-01                                       | AA706087.1               | EST_HUMAN                     | z89g05.s1 Soares fetal liver spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:462776 3'                          |
| 12953                  | 25556                 |                   | 1.44                 | 6.0E-01                                       | 5803136                  | NT                            | Homo sapiens RNA binding motif protein 3 (RBM3), mRNA   |
| 12958                  | 25683                 | 31768             | 5.46                 | 6.0E-01                                       | 5065303                  | NT                            | Mus musculus cGMP-inhibited phosphodiesterase (Pde3a), mRNA   |
| 13032                  | 25880                 |                   | 8.12                 | 6.0E-01                                       | BE157617.1               | EST_HUMAN                     | RC1-HT0375-030500-015-c03 HT0375 Homo sapiens cDNA  |
| 1025                   | 14198                 | 27254             | 1.09                 | 5.9E-01                                       | U32701.1                 | NT                            | Haemophilus influenzae Rd section 16 of 163 of the complete genome  |
| 3343                   | 16518                 | 29530             | 5.23                 | 5.9E-01                                       | AL163267.2               | NT                            | Homo sapiens chromosome 21 segment HS21C067   |
| 3343                   | 16518                 | 29531             | 5.23                 | 5.9E-01                                       | AL163267.2               | NT                            | Homo sapiens chromosome 21 segment HS21C067   |
| 3916                   | 17075                 | 30072             | 0.82                 | 5.9E-01                                       | U74341.1                 | NT                            | Pharodroma neglecta cytochrome b (cytb) gene, mitochondrial gene encoding mitochondrial protein, complete cds |
| 4337                   | 17480                 |                   | 3.95                 | 5.9E-01                                       | AF162759.1               | NT                            | Rattus norvegicus casein 2 mRNA, partial cds  |
| 6289                   | 18407                 | 31374             | 0.86                 | 5.9E-01                                       | AF026568.1               | NT                            | Ovis aries SRY gene promoter region   |
| 6654                   | 18754                 | 33140             | 1.95                 | 5.9E-01                                       | AF065440.2               | NT                            | Homo sapiens low density lipoprotein receptor-related protein II (LRP2) gene, exon 1 and partial cds          |
| 7416                   | 20494                 | 33982             | 3.08                 | 5.9E-01                                       | AB023488.1               | NT                            | Homo sapiens gene for histamine H2 receptor, promoter region and complete cds                                 |
| 7558                   | 20628                 |                   | 0.83                 | 5.9E-01                                       | X88801.1                 | NT                            | G.gallus gene for skeletal alpha-actinin, exon EF2  |
| 8188                   | 21270                 | 34785             | 0.48                 | 5.9E-01                                       | D80911.1                 | NT                            | Synechocystis sp. PCC6803 complete genome, 13/27, 1576593-1719543   |
| 8639                   | 21918                 | 35456             | 0.48                 | 5.9E-01                                       | D12822.1                 | NT                            | Legionella pneumophila gene for iron superoxide dismutase, complete cds                                       |
| 9743                   | 22807                 | 36385             | 1.01                 | 5.9E-01                                       | AF063204.2               | NT                            | Chlamydia trachomatis strain KUW3/UCx major outer membrane protein (omp1) gene, complete cds                  |
| 10117                  | 23155                 |                   | 0.84                 | 5.9E-01                                       | P04463                   | SWISSPROT                     | E8 PROTEIN  |
| 10301                  | 23426                 | 37053             | 1.28                 | 5.9E-01                                       | P55284                   | SWISSPROT                     | VASCULAR ENDOTHELIAL-CADHERIN PRECURSOR (VE-CADHERIN) (CADHERIN-5)  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 10908                  | 23991                 | 37824             | 2.24                 | 5.9E-01                                       | Q92083                   | SWISSPROT                     | THYMIDYLATE KINASE (DTMP KINASE)  |
| 10916                  | 23989                 | 37832             | 1.71                 | 5.9E-01                                       | AF187944.1               | NT                            | Xenopus laevis receptor protein tyrosine phosphatase delta (XPTP-D) mRNA, complete cds            |
| 11203                  | 24272                 | 37908             | 2.76                 | 5.9E-01                                       | AF1837175.1              | EST_HUMAN                     | PM1-DT0041-190100-002-h08 DT0041 Homo sapiens cDNA  |
| 11469                  | 24528                 | 38201             | 1.98                 | 5.9E-01                                       | AF084628.1               | NT                            | Mus spretus strain SPRET/IEI CD-48 antigen (Cd48) gene, partial cds                               |
| 12302                  | 26220                 | 32101             | 1.78                 | 5.9E-01                                       | L42320.1                 | NT                            | Oryctolagus cuniculus alpha 1 anti-lysozin (alpha 1 AT) gene, promoter region                     |
| 12549                  | 25372                 |                   | 1.92                 | 5.9E-01                                       | AB017705.1               | NT                            | Aspergillus oryzae pyrG gene for orotidine-5'-phosphate decarboxylase, complete cds               |
| 12798                  | 25633                 |                   | 4.82                 | 5.9E-01                                       | P34926                   | SWISSPROT                     | MICROTUBULE-ASSOCIATED PROTEIN 1A [CONTAINS: MAP1 LIGHT CHAIN LC2]                                |
| 1959                   | 16101                 | 28201             | 1.28                 | 5.9E-01                                       | P40472                   | SWISSPROT                     | SM1 PROTEIN   |
| 4082                   | 17247                 | 30252             | 1.11                 | 5.8E-01                                       | BF085738.1               | EST_HUMAN                     | 601862474F1 NIH_MGC_56 Homo sapiens cDNA clone IMAGE:4078131 5'                                   |
| 4637                   | 17773                 | 30753             | 3.59                 | 5.8E-01                                       | AB006077.1               | NT                            | Vigna radiata mRNA for protein pyrophosphatase, complete cds                                      |
| 4917                   | 18047                 |                   | 2.22                 | 5.9E-01                                       | AF110846.1               | NT                            | Megastelia scalaris sex-lethal homolog (Mgsstl) gene, partial cds, alternatively spliced products |
| 5490                   | 19689                 |                   | 1.02                 | 5.9E-01                                       | AE002152.1               | NT                            | Ureaplasma urealyticum section 53 of 59 of the complete genome                                    |
| 5848                   | 18842                 | 32123             | 0.81                 | 5.9E-01                                       | Q10699                   | SWISSPROT                     | POTENTIAL 5'-3' EXONUCLEASE   |
| 6313                   | 19485                 | 32840             | 1.69                 | 5.9E-01                                       | D78859.1                 | EST_HUMAN                     | HUM500E06B Human placenta polyA+ (TFijlwara) Homo sapiens cDNA clone GEN-500E06 5'                |
| 6442                   | 19609                 | 32872             | 0.58                 | 5.8E-01                                       | D50601.1                 | NT                            | Shigella sonnei DNA for 26 ORFs, complete cds   |
| 6862                   | 20265                 |                   | 2.37                 | 5.8E-01                                       | S68091.1                 | NT                            | cyclic AMP-regulated phosphoprotein [rats, mRNA, 1030 nt]   |
| 8071                   | 21153                 |                   | 2.87                 | 5.8E-01                                       | H41671.1                 | EST_HUMAN                     | yrb1603.a1 Scarses adult brain N256HB55Y Homo sapiens cDNA clone IMAGE:175757 3' similar to       |
| 8278                   | 21360                 | 34878             | 0.66                 | 5.8E-01                                       | AJ280051.1               | EST_HUMAN                     | gbs:S78187 M-PHASE INDUCER PHOSPHATASE 2 (HUMAN);   |
| 8278                   | 21360                 | 34879             | 0.66                 | 5.8E-01                                       | AJ280051.1               | EST_HUMAN                     | qh85d10.x1 Scarses_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:1853779 3'                          |
| 8385                   | 21469                 | 34991             | 2.71                 | 5.8E-01                                       | P14328                   | SWISSPROT                     | qh85d10.x1 Scarses_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:1853779 3'                          |
| 8385                   | 21469                 | 34992             | 2.71                 | 5.8E-01                                       | P14328                   | SWISSPROT                     | SPORE COAT PROTEIN SP98   |
| 9092                   | 22171                 | 35716             | 10.4                 | 5.8E-01                                       | AJ270774.1               | NT                            | SPORE COAT PROTEIN SP98   |
| 9172                   | 22260                 | 35763             | 1.23                 | 5.8E-01                                       | Q27368                   | SWISSPROT                     | Homo sapiens partial TCF-4 gene for T-cell transcription factor-4, exons 8-11                     |
| 9179                   | 22251                 | 35794             | 0.57                 | 5.8E-01                                       | Q20471                   | SWISSPROT                     | TRANSCRIPTION FACTOR E2F  |
| 9796                   | 22836                 |                   | 0.79                 | 5.8E-01                                       | BF031806.1               | EST_HUMAN                     | PUTATIVE CASEIN KINASE TF-48F2.2 IN CHROMOSOME X  |
| 11237                  | 24308                 | 37943             | 7.26                 | 5.8E-01                                       | AJ248213.1               | NT                            | 601557774F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:3827298 5'                                   |
| 11291                  | 24357                 |                   | 3.35                 | 5.8E-01                                       | BF700092.1               | EST_HUMAN                     | Homo sapiens partial 5-HT4 receptor gene, exons 2 to 6  |
| 11407                  | 24468                 |                   | 1.44                 | 5.8E-01                                       | BF700092.1               | EST_HUMAN                     | 602127577F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:4284403 5'                                   |
| 3108                   | 16284                 |                   | 0.73                 | 5.7E-01                                       | 8756253                  | NT                            | 602127577F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:4284403 5'                                   |
| 3296                   | 16469                 | 29498             | 1.46                 | 5.7E-01                                       | Q9WTJ2                   | SWISSPROT                     | Mus musculus plasmacytoma variant translocation 1 (Pvt1), mRNA                                    |
|                        |                       |                   |                      |   |                          |                               | PUTATIVE TRANSCRIPTION FACTOR OVO-LIKE 1 (MOVO1) (MOVO1A)   |
| 3593                   | 16757                 |                   | 2.84                 | 5.7E-01                                       | AB033503.1               | NT                            | Populus euphratica pease-2 mRNA for 1-aminocyclopropane-1-carboxylate synthase, complete cds      |
| 6485                   | 18662                 | 33014             | 4.41                 | 5.7E-01                                       | BF035413.1               | EST_HUMAN                     | 601454862F1 NIH_MGC_68 Homo sapiens cDNA clone IMAGE:3868690 5'                                   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 6850                   | 20003                 | 33412             | 0.92                 | 5.7E-01                                       | AA194201.1               | EST_HUMAN                     | z38c06.f1 Soares NIH/MPu_S1 Homo sapiens cDNA clone IMAGE:665674 5'                           |
| 7000                   | 18519                 | 31512             | 1.15                 | 5.7E-01                                       | AL111440.1               | NT                            | Boltyls chirewa strain T4 cDNA library under conditions of nitrogen deprivation               |
| 7941                   | 20891                 | 34501             | 1.88                 | 5.7E-01                                       | P00373                   | SWISSPROT                     | PYRROLINE-5-CARBOXYLATE REDUCTASE (P6CR) (P6C REDUCTASE)                                      |
| 8157                   | 21230                 |                   | 0.55                 | 5.7E-01                                       | AJ251835.1               | NT                            | Mus musculus Kcrq1, Ltprc5, Mash2, Taper-1, Tasc4 and Tasc8 genes, alternative transcripts    |
| 10004                  | 23042                 | 36834             | 1.13                 | 5.7E-01                                       | AL161632.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 32                                 |
| 10004                  | 23042                 | 36835             | 1.13                 | 5.7E-01                                       | AL161632.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 32                                 |
| 10803                  | 23836                 | 37461             | 0.91                 | 5.7E-01                                       | BF540952.1               | EST_HUMAN                     | 60207712F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:4068810 5'                                |
| 12255                  | 25192                 |                   | 1.28                 | 5.7E-01                                       | BE716051.1               | EST_HUMAN                     | MF3-HT0736-180700-003-e02 HT0736 Homo sapiens cDNA  |
| 13025                  | 25575                 |                   | 1.31                 | 5.7E-01                                       | BE959722.2               | EST_HUMAN                     | 601654814R1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:3839763 3'                               |
| 3449                   | 16617                 | 29635             | 1.1                  | 5.6E-01                                       | AB018283.2               | NT                            | Homo sapiens mRNA for KIAA0740 protein, partial cds   |
| 3449                   | 16617                 | 29636             | 1.1                  | 5.6E-01                                       | AB018283.2               | NT                            | Homo sapiens mRNA for KIAA0740 protein, partial cds   |
| 3889                   | 17146                 | 30152             | 0.59                 | 5.6E-01                                       | AL161501.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 13                                 |
| 4354                   | 17497                 | 30476             | 0.77                 | 5.6E-01                                       | D83133.1                 | NT                            | Chicken TBP gene, exon8, complete cds   |
| 9003                   | 22082                 | 35625             | 4.11                 | 5.6E-01                                       | AV684703.1               | EST_HUMAN                     | AV684703 GKC Homo sapiens cDNA clone GKCF5F05 5'  |
| 9003                   | 22082                 | 35626             | 4.11                 | 5.6E-01                                       | AV684703.1               | EST_HUMAN                     | AV684703 GKC Homo sapiens cDNA clone GKCF5F05 5'  |
| 9575                   | 22717                 | 36285             | 1.13                 | 5.6E-01                                       | AB038782.1               | NT                            | Homo sapiens MUC3A gene for intestinal mucin, partial cds                                     |
| 12153                  | 25123                 |                   | 7.84                 | 5.6E-01                                       | BE888280.1               | EST_HUMAN                     | 601614007F1 NIH_MGC_71 Homo sapiens cDNA clone IMAGE:3915457 5'                               |
| 12772                  | 25204                 | 38362             |                      |   |                          |                               | ng75g10.a1 NCI_CGAP_P16 Homo sapiens cDNA clone IMAGE:940674 similar to cointain element PTR7 |
| 12861                  | 17146                 | 30152             | 1.39                 | 5.6E-01                                       | AA483535.1               | EST_HUMAN                     | repetitive element;   |
| 12880                  | 25460                 |                   | 2.38                 | 5.6E-01                                       | AL161501.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 13                                 |
| 13167                  | 25753                 |                   | 2.66                 | 5.6E-01                                       | P50505                   | SWISSPROT                     | HIGH AFFINITY POTASSIUM TRANSPORTER   |
| 1238                   | 14397                 | 27459             | 3.84                 | 5.6E-01                                       | BF73829.1                | EST_HUMAN                     | 602132020F1 NIH_MGC_81 Homo sapiens cDNA clone IMAGE:4271334 5'                               |
| 2766                   | 15991                 | 28890             | 8.04                 | 5.5E-01                                       | 8363912                  | NT                            | Rattus norvegicus Protophyll Coenzyme A carboxylase, beta polypeptide (Pocb), mRNA            |
| 2768                   | 15991                 | 28890             | 9.3                  | 5.5E-01                                       | P03341                   | SWISSPROT                     | GAG POLYPROTEIN [CONTAINS: INNER COAT PROTEIN P12; CORE PROTEIN P16; CORE SHELL               |
| 2768                   | 15991                 | 28891             |                      |   |                          |                               | GAG POLYPROTEIN [CONTAINS: INNER COAT PROTEIN P12; CORE PROTEIN P16; CORE SHELL               |
| 2985                   | 16161                 | 29178             | 6.3                  | 5.5E-01                                       | P03341                   | SWISSPROT                     | PROTEIN P30; NUCLEOPROTEIN P10  |
| 3134                   | 16310                 |                   | 1.17                 | 5.5E-01                                       | H46219.1                 | EST_HUMAN                     | Homo sapiens superfamily viral-like activity 2 (S. cerevisiae homolog) (SKIV2L), mRNA         |
| 3306                   | 16480                 | 29601             | 1.57                 | 5.5E-01                                       | AF227240.1               | NT                            | ye18a10.a1 Soares adult brain N2568-B55Y Homo sapiens cDNA clone IMAGE:178288 3'              |
| 3783                   | 16944                 | 29951             | 2.83                 | 5.5E-01                                       | P48755                   | SWISSPROT                     | Rabbit oral papillomavirus, complete genome   |
| 6249                   | 18370                 |                   | 1.34                 | 5.5E-01                                       | AF063988.1               | NT                            | PO3-RELATED ANTIGEN-1   |
| 5288                   | 18388                 | 31356             | 1                    | 5.5E-01                                       | U69097.1                 | NT                            | Melanoplus sanguinipes entomopoxvirus, complete genome  |
|                        |                       |                   | 1.01                 | 5.5E-01                                       |                          | NT                            | Bos taurus MHC class II beta-chain B2A-DIB1 gene, partial cds                                 |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 7405                   | 20483                 | 33950             | 0.59                 | 5.5E-01                                       | AF030001.1               | NT                            | Mus musculus major histocompatibility locus class III region: butyrophilin-like protein gene, partial cds; Notch4, PBX2, RAAGE, lysophosphatidic acid acyl transferase-alpha, palmitoyl-protein thioesterase 2 (PPT2), CREB-RP, and tenascin X (TNX) genes, complex |
| 7405                   | 20483                 | 33951             | 0.59                 | 5.5E-01                                       | AF030001.1               | NT                            | Mus musculus major histocompatibility locus class III region: butyrophilin-like protein gene, partial cds; Notch4, PBX2, RAAGE, lysophosphatidic acid acyl transferase-alpha, palmitoyl-protein thioesterase 2 (PPT2), CREB-RP, and tenascin X (TNX) genes, complex |
| 7439                   | 20516                 |                   | 0.74                 | 5.5E-01                                       | AB015598.1               | NT                            | Carassius auratus gene for gonadotropin II beta subunit, complete cds   |
| 8878                   | 21756                 | 36291             | 0.47                 | 5.5E-01                                       | BE163243.1               | EST_HUMAN                     | QV3-HTD458-170200-090-005 HTD458 Homo sapiens cDNA  |
| 9889                   | 23008                 |                   | 0.56                 | 5.5E-01                                       | U88415.1                 | NT                            | Chinese-Congo hemorrhagic fever virus strain SPU 415/85 nucleoprotein gene, complete cds  |
| 10588                  | 23823                 | 37230             | 0.83                 | 5.5E-01                                       | T05047.1                 | EST_HUMAN                     | ESTD2835 Fetal brain, Stratagene (cd01839206) Homo sapiens cDNA clone HFBOQ35   |
| 11408                  | 24467                 | 38132             | 1.64                 | 5.5E-01                                       | BF129507.1               | EST_HUMAN                     | 601811077R1 NIH_MGC_48 Homo sapiens cDNA clone IMAGE:4054003 3'   |
| 147                    | 13372                 | 28404             | 8.11                 | 5.4E-01                                       | 7657268                  | NT                            | Homo sapiens KIAA0829 protein Msc2 interacting nuclear target (MINT) homolog (KIAA0829), mRNA   |
| 147                    | 13372                 | 28405             | 8.11                 | 5.4E-01                                       | 7657268                  | NT                            | Homo sapiens KIAA0829 protein Msc2 interacting nuclear target (MINT) homolog (KIAA0829), mRNA   |
| 598                    | 13788                 | 26808             | 1.01                 | 5.4E-01                                       | AF282006.1               | NT                            | Pseudomonas syringae pv. tomato strain DC3000 AvrE (avrE), HrpW (hrpW), and Gsta (gsta) genes, complete cds; and unknown genes  |
| 598                    | 13788                 | 26809             | 1.01                 | 5.4E-01                                       | AF282006.1               | NT                            | Pseudomonas syringae pv. tomato strain DC3000 AvrE (avrE), HrpW (hrpW), and Gsta (gsta) genes, complete cds; and unknown genes  |
| 1300                   | 14456                 | 27522             | 2.21                 | 5.4E-01                                       | AW896087.1               | EST_HUMAN                     | QV4-NN0040-070400-160-c04 NN0040 Homo sapiens cDNA  |
| 2173                   | 15308                 |                   | 2.8                  | 5.4E-01                                       | AE002247.2               | NT                            | Chlamydia pneumoniae AR39, section 74 of 94 of the complete genome  |
| 2328                   | 16461                 | 28594             | 2.82                 | 5.4E-01                                       | AJ276882.1               | NT                            | Drosophila melanogaster mRNA for 15,15' beta-carotene dioxygenase (beta-diox gene)  |
| 5774                   | 18906                 | 32269             | 0.89                 | 5.4E-01                                       | AW842327.1               | EST_HUMAN                     | PM2-CN0030-030200-003-c10 CN0030 Homo sapiens cDNA  |
| 6320                   | 19482                 | 32850             | 0.93                 | 5.4E-01                                       | AB025017.1               | NT                            | Rattus norvegicus gene for TIS11, complete cds  |
| 7170                   | 20303                 | 33746             | 0.77                 | 5.4E-01                                       | BE898592.2               | EST_HUMAN                     | 601660278R1 NIH_MGC_71 Homo sapiens cDNA clone IMAGE:3806090 3'   |
| 7480                   | 20565                 | 34035             | 1.96                 | 5.4E-01                                       | Z21619.1                 | NT                            | S. cerevisiae RIB3 gene encoding DBP synthase   |
| 7480                   | 20565                 | 34036             | 1.96                 | 5.4E-01                                       | Z21619.1                 | NT                            | S. cerevisiae RIB3 gene encoding DBP synthase   |
| 7482                   | 20567                 | 34039             | 1.47                 | 5.4E-01                                       | Q64428                   | SWISSPROT                     | MITOCHONDRIAL TRIFUNCTIONAL ENZYME ALPHA SUBUNIT PRECURSOR (TF-ALPHA)   |
| 10195                  | 23232                 |                   | 2.69                 | 5.4E-01                                       | BF572536.1               | EST_HUMAN                     | [INCLUDES: LONG-CHAIN ENOYL-COA HYDRATASE; LONG CHAIN 3-HYDROXYACYL-COA DEHYDROGENASE]  |
| 11334                  | 24367                 | 38046             | 2.68                 | 5.4E-01                                       | P38858                   | SWISSPROT                     | 602076545F1 NIH_MGC_62 Homo sapiens cDNA clone IMAGE:4243690 5'   |
| 11920                  | 24906                 | 38607             | 2.76                 | 5.4E-01                                       | Q60675                   | SWISSPROT                     | NITRATE REDUCTASE [NADPH] (NR)  |
| 11920                  | 24906                 | 38607             | 2.76                 | 5.4E-01                                       | Q60675                   | SWISSPROT                     | LAMININ ALPHA-2 CHAIN PRECURSOR (LAMININ M CHAIN) (MEROSIN HEAVY CHAIN)   |
| 11920                  | 24906                 | 38608             | 2.76                 | 5.4E-01                                       | Q60675                   | SWISSPROT                     | LAMININ ALPHA-2 CHAIN PRECURSOR (LAMININ M CHAIN) (MEROSIN HEAVY CHAIN)   |

Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 12039                  | 19482                 | 32850             | 1.3                  | 5.4E-01                                       | AB025017.1               | NT                            | Rattus norvegicus gene for TIS11, complete cds  |
| 12217                  | 25168                 |                   | 2.41                 | 5.4E-01                                       | A1859398.1               | EST_HUMAN                     | w437g04.x1 NCL_CGAP_U1 Homo sapiens cDNA clone IMAGE:2427128 3' similar to gb:M13452 LAMIN A (HUMAN);   |
| 529                    | 13722                 | 28748             | 2.12                 | 5.3E-01                                       | AF010413.1               | NT                            | Homo sapiens HLA class III region containing tenascin X (tenascin-X) gene, partial cds; cytochrome P450 21-hydroxylase (CYP21B), complement component C4 (C4B) G11, heparinase (SH2W), RD, complement factor B (Bf), and complement component C2 (C2) genes;> |
| 2843                   | 15957                 | 29065             | 8.83                 | 5.3E-01                                       | 4506328                  | NT                            | Homo sapiens protein tyrosine phosphatase, receptor-type, zeta polypeptide 1 (PTPRZ1) mRNA  |
| 2843                   | 15957                 | 29068             | 8.83                 | 5.3E-01                                       | 4506328                  | NT                            | Homo sapiens protein tyrosine phosphatase, receptor-type, zeta polypeptide 1 (PTPRZ1) mRNA  |
| 3315                   | 16488                 | 29506             | 3.8                  | 5.3E-01                                       | AF087658.1               | NT                            | Homo sapiens secreted C-type lectin precursor (LSLCL) gene, complete cds  |
| 4327                   | 17470                 |                   | 1.2                  | 5.3E-01                                       | U39887.1                 | NT                            | Mycoplasma genitalium section 9 of 51 of the complete genome  |
| 5574                   | 18770                 | 31813             | 1.55                 | 5.3E-01                                       | A1820921.1               | EST_HUMAN                     | zu42h12.y6 Soares ovary tumor NIH/OT Homo sapiens cDNA clone IMAGE:740711 5'  |
| 5574                   | 18770                 | 31814             | 1.55                 | 5.3E-01                                       | A1820921.1               | EST_HUMAN                     | zu42h12.y6 Soares ovary tumor NIH/OT Homo sapiens cDNA clone IMAGE:740711 5'  |
| 5871                   | 18935                 | 32150             | 0.95                 | 5.3E-01                                       | AA193872.1               | EST_HUMAN                     | zu42g09.r1 Soares NIH/MPu_S1 Homo sapiens cDNA clone IMAGE:666112 5'  |
| 5871                   | 18935                 | 32151             | 0.95                 | 5.3E-01                                       | AA193872.1               | EST_HUMAN                     | zu42g09.r1 Soares NIH/MPu_S1 Homo sapiens cDNA clone IMAGE:666112 5'  |
| 5762                   | 18954                 | 32257             | 2.32                 | 5.3E-01                                       | BE845620.1               | EST_HUMAN                     | 7a73c12.x1 NCL_CGAP_P128 Homo sapiens cDNA clone IMAGE:3288118 3' similar to gb:J02783 PROTEIN DISULFIDE ISOMERASE PRECURSOR (HUMAN);   |
| 5762                   | 18954                 | 32258             | 2.32                 | 5.3E-01                                       | BE845620.1               | EST_HUMAN                     | 7a73c12.x1 NCL_CGAP_P128 Homo sapiens cDNA clone IMAGE:3288118 3' similar to gb:J02783 PROTEIN DISULFIDE ISOMERASE PRECURSOR (HUMAN);   |
| 9105                   | 22184                 |                   | 1.59                 | 5.3E-01                                       | L01850.2                 | NT                            | Rattus norvegicus ribulose 1,5-bisphosphate carboxylase (rbcl) gene, partial cds; chloroplast gene for chloroplast product  |
| 9166                   | 22234                 | 35779             | 0.76                 | 5.3E-01                                       | BF433956.1               | EST_HUMAN                     | 7a71c12.x1 NCL_CGAP_L124 Homo sapiens cDNA clone IMAGE:3' similar to contains element MER29 repetitive element;   |
| 9156                   | 22234                 | 35780             | 0.76                 | 5.3E-01                                       | BF433956.1               | EST_HUMAN                     | 7a71c12.x1 NCL_CGAP_L124 Homo sapiens cDNA clone IMAGE:3' similar to contains element MER29 repetitive element;   |
| 10418                  | 23451                 | 37058             | 0.65                 | 5.3E-01                                       | A1854210.1               | EST_HUMAN                     | w64b02.x1 NCL_CGAP_Mat15 Homo sapiens cDNA clone IMAGE:2551275 3' similar to  |
| 11857                  | 24845                 | 38542             | 5.63                 | 5.3E-01                                       | BE596281.1               | EST_HUMAN                     | SW:COXA_HUMAN P20674 CYTOCHROME C OXIDASE POLYPEPTIDE VA PRECURSOR;   |
| 12146                  | 26868                 |                   | 1.73                 | 5.3E-01                                       | AA016053.1               | EST_HUMAN                     | G073386677.1 NIH_MGC_B3 Homo sapiens cDNA clone IMAGE:3862168 5'  |
| 839                    | 14017                 | 27072             | 20.65                | 5.2E-01                                       | L20770.1                 | NT                            | cg30e05.s1 NCL_CGAP_B7 Homo sapiens cDNA clone IMAGE:1441378 3' similar to gb:J02611 APOLIPROTEIN D PRECURSOR (HUMAN);  |
| 1190                   | 14352                 | 27410             | 7.57                 | 5.2E-01                                       | Q8WY30                   | SWISSPROT                     | Drosophila melanogaster helix-loop-helix mRNA, complete cds   |
| 1216                   | 14379                 | 27438             | 3.05                 | 5.2E-01                                       | AF224492.1               | NT                            | NUCLEAR FACTOR OF ACTIVATED T CELLS 6 (T CELL TRANSCRIPTION FACTOR NFAT5) (NF-A15) (REL DOMAIN-CONTAINING TRANSCRIPTION FACTOR NFAT5)   |
| 1835                   | 18078                 |                   | 3.88                 | 5.2E-01                                       | AL163285.2               | NT                            | Homo sapiens phospholipid scramblase 1 gene, complete cds   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens chromosome 21 segment H521C085   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 2213                   | 16347                 | 28478             | 2.85                 | 5.2E-01                                       | AB018283.2               | NT                            | Homo sapiens mRNA for KIAA0740 protein, partial cds  |
| 3189                   | 16364                 | 28369             | 2.1                  | 5.2E-01                                       | U65942.1                 | NT                            | Chlamydomonas abortus strain S283 POM90A and POM90A precursor, genes, complete cds   |
| 3309                   | 16483                 |                   | 1.05                 | 5.2E-01                                       | D73443.1                 | NT                            | Azotobacter vinelandii lsd gene for isocitrate dehydrogenase, complete cds   |
| 3491                   | 16538                 |                   | 1.61                 | 5.2E-01                                       | AL116780.1               | NT                            | Botrytis cinerea strain T4 cDNA library under conditions of nitrogen deprivation   |
| 3630                   | 16696                 | 28706             | 2.01                 | 5.2E-01                                       | AA084165.1               | EST_HUMAN                     | am7605.s1 Stragene schzo brath S11 Homo sapiens cDNA clone IMAGE:161604 3'   |
| 3722                   | 16883                 |                   | 0.77                 | 5.2E-01                                       | AF020263.1               | NT                            | Medicago sativa chloroplast malate dehydrogenase precursor (p1mdh) mRNA, nuclear gene encoding chloroplast protein, complete cds   |
| 3724                   | 16885                 | 28891             | 0.87                 | 5.2E-01                                       | U82671.2                 | NT                            | Homo sapiens chromosome Xc28 melanoma antigen family A2a (MAGEA2A), melanoma antigen family A12 (MAGEA12), melanoma antigen family A2b (MAGEA2B), melanoma antigen family A3 (MAGEA3), catractin (CAL-T), NAD(P)H dehydrogenase-like protein (NSDHL), and L2 |
| 4729                   | 17684                 | 30846             | 0.61                 | 5.2E-01                                       | 6752947                  | NT                            | Mus musculus acetylcholine receptor beta (Acb), mRNA   |
| 5770                   | 16862                 | 32263             | 0.92                 | 5.2E-01                                       | AA284261.1               | EST_HUMAN                     | zc44d08.T7 Soares, senescent fibroblasts, NblHSF Homo sapiens cDNA clone IMAGE:325168 3'   |
| 9832                   | 25862                 | 36562             | 0.87                 | 5.2E-01                                       | X02218.1                 | NT                            | Chicken duplicated genes for histone H2A, H4 and a histone H3 gene   |
| 9832                   | 25862                 | 36563             | 0.87                 | 5.2E-01                                       | X02218.1                 | NT                            | Chicken duplicated genes for histone H2A, H4 and a histone H3 gene   |
| 10196                  | 23174                 | 36772             | 0.49                 | 5.2E-01                                       | AA194518.1               | EST_HUMAN                     | zp05b09.r1 Stragene muscle 637209 Homo sapiens cDNA clone IMAGE:628783 5'  |
| 10233                  | 23268                 | 36858             | 1.32                 | 5.2E-01                                       | AF143952.2               | NT                            | Homo sapiens PELOTA (PELOTA) gene, complete cds  |
| 13128                  | 25736                 |                   | 4.83                 | 5.2E-01                                       | P18518                   | SWISSPROT                     | RETINOIC ACID RECEPTOR GAMMA (RAR-GAMMA) (RETINOIC ACID RECEPTOR DELTA) (RAR-DELTA)  |
| 632                    | 13917                 | 26941             | 2.5                  | 5.1E-01                                       | M68509.1                 | NT                            | Human adrenodoxin reductase gene, exons 3 to 12  |
| 685                    | 13851                 | 26878             | 4.57                 | 5.1E-01                                       | AJ233944.1               | NT                            | Polyangium vitellinum (strain PI vt) 16S rRNA gene   |
| 685                    | 13851                 | 26879             | 4.57                 | 5.1E-01                                       | AJ233944.1               | NT                            | Polyangium vitellinum (strain PI vt) 16S rRNA gene   |
| 1694                   | 14838                 |                   | 1.02                 | 6.1E-01                                       | X87885.1                 | NT                            | R. norvegicus mRNA for mammalian fusca protein   |
| 4188                   | 17338                 | 30331             | 3.87                 | 5.1E-01                                       | AI658485.1               | EST_HUMAN                     | w88b12.x1 NCL_CGAP_UH1 Homo sapiens cDNA clone IMAGE:2427283 3'  |
| 4303                   | 17448                 | 30432             | 2.89                 | 5.1E-01                                       | P66380                   | SWISSPROT                     | TRANSCRIPTION-REPAIR COUPLING FACTOR (TRCF)  |
| 5179                   | 18301                 |                   | 0.6                  | 5.1E-01                                       | BE081798.1               | EST_HUMAN                     | IL2-BT0731-250400-077-G08 BT0731 Homo sapiens cDNA   |
| 6352                   | 19522                 | 32879             | 1                    | 5.1E-01                                       | BE541088.1               | EST_HUMAN                     | 601068806F1 NIH_MGC_10 Homo sapiens cDNA clone IMAGE:3450000 5'  |
| 6408                   | 19576                 |                   | 0.9                  | 5.1E-01                                       | AV712328.1               | EST_HUMAN                     | AV712328 DCA Homo sapiens cDNA clone DCAAU707 5'   |
| 7067                   | 20110                 | 33528             | 1.36                 | 5.1E-01                                       | R80873.1                 | EST_HUMAN                     | y84609.s1 Soares placenta Nb2-IP Homo sapiens cDNA clone IMAGE:146872 3'   |
| 8770                   | 21849                 | 35389             | 0.84                 | 5.1E-01                                       | AW806881.1               | EST_HUMAN                     | QV4-ST0023-160400-172-401 ST0023 Homo sapiens cDNA   |
| 8770                   | 21849                 | 35390             | 0.84                 | 5.1E-01                                       | AW806881.1               | EST_HUMAN                     | QV4-ST0023-160400-172-401 ST0023 Homo sapiens cDNA   |
| 9888                   | 22628                 | 36510             | 4.65                 | 5.1E-01                                       | J05412.1                 | NT                            | Human regenerating protein (reg) gene, complete cds  |
| 9889                   | 22629                 | 36513             | 3.96                 | 5.1E-01                                       | W22302.1                 | EST_HUMAN                     | 65B1 Human retina cDNA Tap508P-cleaned sublibrary Homo sapiens cDNA not directional  |
| 10383                  | 23398                 | 37009             | 0.99                 | 5.1E-01                                       | M94578.1                 | NT                            | Human carboxyl ester lipase (CEL) gene, complete cds   |
| 12368                  | 25674                 |                   | 3.49                 | 5.1E-01                                       | BF030207.1               | EST_HUMAN                     | 601568883F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:3828707 5'  |



Page 54 of 550

Table 4  
Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 12834                  | 26427                 |                   | 1.31                 | 5.1E-01                                       | BF430882.1               | EST_HUMAN                     | nc511f10.x1 NCI_CGAP_Bri23 Homo sapiens cDNA clone IMAGE:3408218 3' similar to contains element  |
| 2203                   | 15338                 | 28464             | 1.65                 | 5.0E-01                                       | 4885552                  | NT                            | TAR1 repetitive element;   |
| 2203                   | 15338                 | 28465             | 1.65                 | 5.0E-01                                       | 4885552                  | NT                            | Homo sapiens postmitotic segregation increased 2-like 9 (PMS2L9), mRNA   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens postmitotic segregation increased 2-like 9 (PMS2L9), mRNA   |
| 2211                   | 15345                 | 28472             | 2.09                 | 5.0E-01                                       | AF008210.1               | NT                            | Buchnera aphidicola genomic fragment containing (chaperone Hsp60) groEL, DNA biosynthesis initiating protein (dnaA), ATP operon (atpCDGAH-FEB), and putative chromosome replication protein (gidA) genes, complete cds; and termination factor Rho (rho) gene> |
|                        |                       |                   |                      |   |                          |                               | Buchnera aphidicola genomic fragment containing (chaperone Hsp60) groEL, DNA biosynthesis initiating protein (dnaA), ATP operon (atpCDGAH-FEB), and putative chromosome replication protein (gidA) genes, complete cds; and termination factor Rho (rho) gene> |
| 2211                   | 15345                 | 28473             | 2.09                 | 5.0E-01                                       | AF008210.1               | NT                            | Buchnera aphidicola genomic fragment containing (chaperone Hsp60) groEL, DNA biosynthesis initiating protein (dnaA), ATP operon (atpCDGAH-FEB), and putative chromosome replication protein (gidA) genes, complete cds; and termination factor Rho (rho) gene> |
| 2231                   | 15365                 |                   | 1.56                 | 5.0E-01                                       | AL161533.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 33  |
| 3842                   | 17001                 | 30004             | 0.85                 | 5.0E-01                                       | U65574.1                 | NT                            | Mus musculus anti-DNA immunoglobulin light chain IgM mRNA, antibody 363p.138, partial cds  |
| 3934                   | 17093                 | 30091             | 0.83                 | 5.0E-01                                       | L38463.1                 | NT                            | Rattus norvegicus jagged protein mRNA, complete cds  |
| 3977                   | 17134                 | 30137             | 2.67                 | 5.0E-01                                       | AB033010.1               | NT                            | Homo sapiens mRNA for KIAA1184 protein, partial cds  |
| 6782                   | 19637                 |                   | 0.82                 | 5.0E-01                                       | BF576198.1               | EST_HUMAN                     | 602132842F1 NIH_MGC_81 Homo sapiens cDNA clone IMAGE:4271839 5'  |
| 7842                   | 20897                 | 34398             | 0.84                 | 5.0E-01                                       | AL161549.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 49  |
| 7842                   | 20897                 | 34399             | 0.84                 | 5.0E-01                                       | AL161549.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 49  |
| 8727                   | 21807                 |                   | 1.63                 | 5.0E-01                                       | M82304.1                 | NT                            | Xenopus laevis smooth muscle beta-tropomyosin mRNA, complete cds   |
| 8870                   | 21849                 | 35494             | 0.68                 | 5.0E-01                                       | BF107848.1               | EST_HUMAN                     | 601823850R1 NIH_MGC_79 Homo sapiens cDNA clone IMAGE:4043486 3'  |
| 9657                   | 21100                 | 34813             | 2.13                 | 5.0E-01                                       | BF317212.1               | EST_HUMAN                     | 601803971F1 NIH_MGC_19 Homo sapiens cDNA clone IMAGE:4196632 5'  |
|                        |                       |                   |                      |   |                          |                               | GLYCOGEN DEBRANCHING ENZYME (GLYCOGEN DEBRANCHER) [INCLUDES: 4-ALPHA-GLUCANOTRANSFERASE (OLIGO-1,4-1,4-GLUCANTRANSFERASE); AMYLO-1,6-GLUCOSIDASE (DEXTRIN 6-ALPHA-D-GLUCOSIDASE)]  |
| 9824                   | 22884                 | 36445             | 1.47                 | 5.0E-01                                       | P35573                   | SWISSPROT                     | GLYCOGEN DEBRANCHING ENZYME (GLYCOGEN DEBRANCHER) [INCLUDES: 4-ALPHA-GLUCANOTRANSFERASE (OLIGO-1,4-1,4-GLUCANTRANSFERASE); AMYLO-1,6-GLUCOSIDASE (DEXTRIN 6-ALPHA-D-GLUCOSIDASE)]  |
| 9824                   | 22884                 | 36446             | 1.47                 | 5.0E-01                                       | P35573                   | SWISSPROT                     | GLYCOGEN DEBRANCHING ENZYME (GLYCOGEN DEBRANCHER) [INCLUDES: 4-ALPHA-GLUCANOTRANSFERASE (OLIGO-1,4-1,4-GLUCANTRANSFERASE); AMYLO-1,6-GLUCOSIDASE (DEXTRIN 6-ALPHA-D-GLUCOSIDASE)]  |
| 10602                  | 23637                 |                   | 1.23                 | 5.0E-01                                       | BE868218.1               | EST_HUMAN                     | 601445024F1 NIH_MGC_66 Homo sapiens cDNA clone IMAGE:3849436 5'  |
| 12307                  | 25226                 |                   | 3.64                 | 5.0E-01                                       | AF028215.1               | NT                            | Mus musculus MRC OX-2 antigen homolog gene, exons 2-5, and complete cds  |
| 13098                  | 25713                 |                   | 2.26                 | 5.0E-01                                       | AL169302.2               | NT                            | Homo sapiens chromosome 21 segment HS21C102  |
| 13109                  | 25724                 |                   | 4.71                 | 5.0E-01                                       | O13991                   | SWISSPROT                     | NUCLEAR ENVELOPE PROTEIN CUT11   |
| 812                    | 13091                 | 27045             | 1.83                 | 4.9E-01                                       | BF571482.1               | EST_HUMAN                     | 602076949F1 NIH_MGC_62 Homo sapiens cDNA clone IMAGE:4249880 5'  |
| 1692                   | 14844                 | 27928             | 1.08                 | 4.9E-01                                       | AJ243955.1               | NT                            | Xenopus laevis mRNA for c-Jun protein, 1978 BP   |
| 1655                   | 15098                 | 28198             | 1.34                 | 4.9E-01                                       | U40988.1                 | NT                            | Cavia porcellus pulmonary surfactant protein A (SP-a) mRNA, complete cds   |
| 5522                   | 18719                 | 31735             | 1.17                 | 4.9E-01                                       | Q61654                   | SWISSPROT                     | FIBRILLIN 1 PRECURSOR  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 6161                   | 18337                 | 32682             | 2.67                 | 4.8E-01                                       | AF020631.1               | NT                            | Homo sapiens diacylglycerol kinase 3 (DAGK3) gene, exon 10   |
| 6161                   | 18337                 | 32683             | 2.67                 | 4.8E-01                                       | AF020631.1               | NT                            | Homo sapiens diacylglycerol kinase 3 (DAGK3) gene, exon 10   |
| 7910                   | 20680                 | 34156             | 1.61                 | 4.8E-01                                       | AB040061.1               | NT                            | Oryza sativa subsp. japonica mEF-G mRNA for mitochondrial elongation factor G, complete cds                |
| 7882                   | 20634                 | 34438             | 0.86                 | 4.8E-01                                       | Q10608                   | SWISSPROT                     | PUTATIVE UNDECAPRENTYL-PHOSPHATE ALPHA-N-ACETYLGLUCOSAMINYLTRANSFERASE                                     |
| 7882                   | 20634                 | 34440             | 0.86                 | 4.8E-01                                       | Q10608                   | SWISSPROT                     | PUTATIVE UNDECAPRENTYL-PHOSPHATE ALPHA-N-ACETYLGLUCOSAMINYLTRANSFERASE                                     |
| 9190                   | 22268                 |                   | 1.98                 | 4.8E-01                                       | BF206704.1               | EST_HUMAN                     | 601874884F1 NIH_MGC_54 Homo sapiens cDNA clone IMAGE:4102903 5'  |
| 9089                   | 22484                 | 38028             | 0.96                 | 4.8E-01                                       | AW339805.1               | EST_HUMAN                     | hs90-02.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2807288 3' similar to TR:086714               |
| 9498                   | 28228                 | 37186             | 2.2                  | 4.8E-01                                       | 10946863                 | NT                            | OB6714 HERC2.  |
| 10524                  | 28558                 | 37186             | 1.05                 | 4.8E-01                                       | AF033880.1               | NT                            | Mus musculus unc13 homolog (C. elegans) 1 (Unc13h1), mRNA  |
| 12197                  | 25154                 |                   | 2.61                 | 4.8E-01                                       | AF176912.1               | NT                            | Mus musculus adenyl cyclase 1 (Adcy1) cDNA, partial cds  |
| 13085                  | 26174                 |                   | 4.94                 | 4.8E-01                                       | AA619582.1               | EST_HUMAN                     | Homo sapiens neurotrophin-1/B-cell stimulating factor-3 gene, complete cds                                 |
| 13084                  | 25714                 | 31639             | 1.69                 | 4.8E-01                                       | AL163301.2               | NT                            | ng22a1.s1 NCL_CGAP_Cot10 Homo sapiens cDNA clone IMAGE:1144682 3'  |
| 13181                  | 25768                 |                   | 1.27                 | 4.8E-01                                       | 11431438                 | NT                            | Homo sapiens chromosome 21 segment HS21C101  |
| 4462                   | 17692                 |                   | 0.69                 | 4.8E-01                                       | 4504850                  | NT                            | Homo sapiens eukaryotic translation initiation factor 4 gamma, 1 (EIF4G1), mRNA                            |
| 5624                   | 18918                 | 31882             | 9.66                 | 4.8E-01                                       | J02987.1                 | NT                            | Homo sapiens potassium channel, subfamily K, member 5 (TASK-2) (KCNK5) mRNA, and translated products       |
| 6817                   | 19970                 | 39378             | 0.69                 | 4.8E-01                                       | U92882.1                 | NT                            | Saccharomyces cerevisiae sporulation protein (SPO11) gene required for meiotic recombination, complete cds |
| 6827                   | 19960                 |                   | 4.18                 | 4.8E-01                                       | AA656876.1               | EST_HUMAN                     | Mus musculus slow skeletal muscle tropomyosin T (Tmtt) gene, complete cds                                  |
| 7459                   | 20544                 |                   | 1.83                 | 4.8E-01                                       | 5031650                  | NT                            | nu85f09.s1 NCL_CGAP_AW1 Homo sapiens cDNA clone IMAGE:1217513  |
| 7845                   | 20600                 | 34403             | 1.06                 | 4.8E-01                                       | AL163209.2               | NT                            | Homo sapiens reproduction 8 (D6S2289E) mRNA  |
| 7838                   | 20688                 | 34497             | 3.59                 | 4.8E-01                                       | AL161482.2               | NT                            | Homo sapiens chromosome 21 segment HS21C009  |
| 7838                   | 20688                 | 34498             | 3.59                 | 4.8E-01                                       | AL161482.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 4   |
| 8089                   | 21171                 | 34686             | 1.91                 | 4.8E-01                                       | AB20744.1                | EST_HUMAN                     | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 4   |
| 8448                   | 22562                 |                   | 1.05                 | 4.8E-01                                       | BE155148.1               | EST_HUMAN                     | Y17710.y3 Soares breast 2NH-Bst Homo sapiens cDNA clone IMAGE:164786 5' similar to contains element        |
| 10212                  | 23248                 |                   | 0.55                 | 4.8E-01                                       | BF568833.1               | EST_HUMAN                     | MER8 repetitive element:   |
| 10968                  | 24047                 |                   | 1.9                  | 4.8E-01                                       | X69502.1                 | NT                            | FN1-HT0380-201288-004-b04 HT0360 Homo sapiens cDNA   |
| 12278                  | 25208                 |                   | 1.56                 | 4.8E-01                                       | AL163227.2               | NT                            | 602184287F1 NIH_MGC_42 Homo sapiens cDNA clone IMAGE:4300048 5'  |
| 12509                  | 25918                 |                   | 5.78                 | 4.8E-01                                       | AF227565.1               | NT                            | S. cerevisiae ORF6 from chromosome X   |
| 3142                   | 18318                 |                   | 0.59                 | 4.7E-01                                       | AF192387.1               | NT                            | Homo sapiens chromosome 21 segment HS21C027  |
| 6844                   | 18803                 | 33180             | 8.07                 | 4.7E-01                                       | BF217173.1               | EST_HUMAN                     | Trypanosoma cruzi transposon VIP II SIRE repeat region   |
| 7186                   | 20051                 | 33461             | 0.84                 | 4.7E-01                                       | AL204974.1               | EST_HUMAN                     | Felis catus feline leukemia virus subgroup C receptor (FLVCR1) mRNA, complete cds                          |
|                        |                       |                   |                      |   |                          |                               | 601883880F1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:4096387 5'  |
|                        |                       |                   |                      |   |                          |                               | qf72a09.x1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:1765644 3'                                      |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 8049                   | 21132                 | 34652             | 0.75                 | 4.7E-01                                       | T11414.1                 | EST_HUMAN                     | hbc811 Human pancreatic islet Homo sapiens cDNA clone hbc811 5'end  |
| 8049                   | 21132                 | 34653             | 0.75                 | 4.7E-01                                       | T11414.1                 | EST_HUMAN                     | hbc811 Human pancreatic islet Homo sapiens cDNA clone hbc811 5'end  |
| 9276                   | 22552                 | 35804             | 0.61                 | 4.7E-01                                       | 6381501                  | NT                            | Rattus norvegicus Spermathe binding protein (Sbp), mRNA   |
| 11084                  | 24158                 |                   | 4.37                 | 4.7E-01                                       | AF102673.1               | NT                            | Influenza A virus isolate h5N1/997 hemagglutinin (HA) gene, partial cds   |
| 11340                  | 24403                 | 38052             | 1.94                 | 4.7E-01                                       | U41088.1                 | NT                            | Human collagen alpha2(XI) (COL11A2) gene, exons 6 through 10, and partial cds   |
| 11658                  | 24737                 | 38428             | 1.45                 | 4.7E-01                                       | AW889448.1               | EST_HUMAN                     | RC9-NT0026-240400-011-E08 NT0026 Homo sapiens cDNA  |
| 12401                  | 25281                 |                   | 1.84                 | 4.7E-01                                       | BE987763.1               | EST_HUMAN                     | 601511033F1 NIH_MGC_71 Homo sapiens cDNA clone IMAGE:3912488 5'   |
| 12529                  | 25361                 |                   | 1.25                 | 4.7E-01                                       | AW341561.1               | EST_HUMAN                     | h411408.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2809198 3'   |
| 3837                   | 16997                 | 28858             | 1.62                 | 4.6E-01                                       | BF693300.1               | EST_HUMAN                     | 602081103F1 NIH_MGC_81 Homo sapiens cDNA clone IMAGE:4245481 5'   |
| 3837                   | 16997                 | 30000             | 1.62                 | 4.6E-01                                       | BF693300.1               | EST_HUMAN                     | 602091103F1 NIH_MGC_81 Homo sapiens cDNA clone IMAGE:4245481 5'   |
| 5535                   | 18732                 | 31747             | 0.93                 | 4.6E-01                                       | BF313593.1               | EST_HUMAN                     | 601900234F1 NIH_MGC_19 Homo sapiens cDNA clone IMAGE:4129472 5'   |
| 5535                   | 18732                 | 31748             | 0.93                 | 4.6E-01                                       | BF313593.1               | EST_HUMAN                     | 601900234F1 NIH_MGC_19 Homo sapiens cDNA clone IMAGE:4129472 5'   |
| 5588                   | 18763                 | 31828             | 3.52                 | 4.6E-01                                       | Q90843                   | SWISSPROT                     | INTERFERON REGULATORY FACTOR 3 (IRF-3)  |
| 5588                   | 18763                 | 31829             | 3.52                 | 4.6E-01                                       | Q90843                   | SWISSPROT                     | INTERFERON REGULATORY FACTOR 3 (IRF-3)  |
| 5663                   | 18857                 | 32140             | 1.84                 | 4.6E-01                                       | BE734781.1               | EST_HUMAN                     | 601568755F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3943037 5'   |
| 5677                   | 18871                 | 32157             | 3.62                 | 4.6E-01                                       | A247878.1                | EST_HUMAN                     | q169h02.x1 Soares_fetal_liver_spleen_INFUS_S1 Homo sapiens cDNA clone IMAGE:1849011 3' similar to   |
| 5677                   | 18871                 | 32158             | 3.62                 | 4.6E-01                                       | A247878.1                | EST_HUMAN                     | TR-O15338 015338 BUTYROPHILIN;  |
| 5685                   | 18879                 | 32169             | 1.44                 | 4.6E-01                                       | P20080                   | SWISSPROT                     | TR-O15338 015338 BUTYROPHILIN;  |
| 5763                   | 18955                 |                   | 0.85                 | 4.6E-01                                       | AF212124.1               | NT                            | MEIOSIS SPECIFIC PROTEIN HOR1   |
| 5850                   | 19040                 |                   | 0.9                  | 4.6E-01                                       | BE817247.1               | EST_HUMAN                     | Arnold schwartz cyclochrome b gene, partial cds; mitochondrial product  |
| 6386                   | 19555                 | 32914             | 0.82                 | 4.6E-01                                       | AE000894.1               | NT                            | PM0-BN0260-120600-001-F07 BN0260 Homo sapiens cDNA  |
| 6908                   | 20221                 | 33849             | 2.99                 | 4.6E-01                                       | UR2332.1                 | NT                            | Methanobacterium thermoautotrophicum from bases 1165761 to 1178238 (section 100 of 148) of the complete genome                                    |
| 6908                   | 20221                 | 33850             | 2.99                 | 4.6E-01                                       | UR2332.1                 | NT                            | Emertella nitidulans NEMPA (nemPA) gene, mitochondrial gene encoding putative mitochondrial protein, complete cds                                 |
| 7378                   | 25843                 | 33820             | 0.66                 | 4.6E-01                                       | L07320.1                 | NT                            | Emertella nitidulans NEMPA (nemPA) gene, mitochondrial gene encoding putative mitochondrial protein, complete cds                                 |
| 7908                   | 20938                 | 34464             | 0.78                 | 4.6E-01                                       | AA493377.1               | EST_HUMAN                     | Murine cytomegalovirus e1 protein gene, complete cds  |
| 8515                   | 21698                 | 35131             | 14.55                | 4.6E-01                                       | BF697388.1               | EST_HUMAN                     | h104405.s1 NCI CGAP_Thy1 Homo sapiens cDNA clone IMAGE:943833 similar to contains Alu repetitive element; contains element L1 repetitive element; |
| 8946                   | 22025                 | 35585             | 0.54                 | 4.6E-01                                       | AA832237.1               | EST_HUMAN                     | 602130833F1 NIH_MGC_55 Homo sapiens cDNA clone IMAGE:4287828 5'   |
|                        |                       |                   |                      |   |                          |                               | co78508.s1 NCI CGAP_Ku65 Homo sapiens cDNA clone IMAGE:1572067 3' similar to gb:A36941 ADP-RIBOSYLATION FACTOR 4 (HUMAN);                         |

Page 57 of 550  
Table 4

Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 8948                   | 22025                 | 35588             | 0.54                 | 4.6E-01                                       | AA832287.1               | EST_HUMAN                     | cc76008.st NCL_CGAP_K165 Homo sapiens cDNA clone IMAGE:1572087 3' similar to gb:M36341 ADP-<br>RBOSYLATION FACTOR 4 (HUMAN); |
| 9501                   | 22557                 | 38120             | 0.03                 | 4.6E-01                                       | P56202                   | SWISSPROT                     | ATRIAL NATRIURETIC PEPTIDE RECEPTOR B PRECURSOR (ANP-B) (ANP-RB) (GC-B) (GUANYLATE<br>CYCLASE)                               |
| 9501                   | 22557                 | 38121             | 0.03                 | 4.6E-01                                       | P56202                   | SWISSPROT                     | ATRIAL NATRIURETIC PEPTIDE RECEPTOR B PRECURSOR (ANP-B) (ANP-RB) (GC-B) (GUANYLATE<br>CYCLASE)                               |
| 9886                   | 22906                 | 36490             | 0.52                 | 4.6E-01                                       | AF182283.1               | NT                            | Glycine max acetyl-CoA carboxylase (accB-1) gene, complete cds; nuclear gene for chloroplast product                         |
| 9886                   | 22906                 | 36491             | 0.52                 | 4.6E-01                                       | AF182283.1               | NT                            | Glycine max acetyl-CoA carboxylase (accB-1) gene, complete cds; nuclear gene for chloroplast product                         |
| 10181                  | 23218                 | 39809             | 1.15                 | 4.6E-01                                       | AJ015634.1               | EST_HUMAN                     | wg736f12.x1 Soares NSF_F8_9W_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:2370768 3'   |
| 10181                  | 23218                 | 39810             | 1.15                 | 4.6E-01                                       | AJ015634.1               | EST_HUMAN                     | wg736f12.x1 Soares NSF_F8_9W_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:2370768 3'   |
| 11238                  | 24307                 |                   | 2.31                 | 4.6E-01                                       | P989183                  | SWISSPROT                     | PUTATIVE VITELLOGENIN RECEPTOR PRECURSOR (VL)  |
| 11248                  | 24317                 | 37956             | 5.03                 | 4.6E-01                                       | BE185449.1               | EST_HUMAN                     | IL5-HT0730-100500-075-905 HT0730 Homo sapiens cDNA   |
| 11248                  | 24317                 | 37957             | 5.03                 | 4.6E-01                                       | BE185449.1               | EST_HUMAN                     | IL5-HT0730-100500-075-905 HT0730 Homo sapiens cDNA   |
| 11760                  | 23946                 | 37573             | 4.3                  | 4.6E-01                                       | AF018389.1               | NT                            | Human thiopurine methyltransferase (TPMT) gene, exon 10 and complete cds   |
| 11760                  | 23946                 | 37574             | 4.3                  | 4.6E-01                                       | AF018389.1               | NT                            | Human thiopurine methyltransferase (TPMT) gene, exon 10 and complete cds   |
| 1950                   | 15103                 | 28203             | 1.15                 | 4.5E-01                                       | AE001831.1               | NT                            | Delnocioccus radiorum R1 section 68 of 229 of the complete chromosome 1  |
| 1950                   | 15103                 | 28204             | 1.15                 | 4.5E-01                                       | AE001831.1               | NT                            | Delnocioccus radiorum R1 section 68 of 229 of the complete chromosome 1  |
| 2933                   | 16110                 | 29124             | 4.83                 | 4.5E-01                                       | AA677086.1               | EST_HUMAN                     | 455d02.s1 Soares fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:454179 3'   |
| 3380                   | 16552                 | 29565             | 0.66                 | 4.5E-01                                       | AW083781.1               | EST_HUMAN                     | xc25c08.x1 NCL_CGAP_Cot18 Homo sapiens cDNA clone IMAGE:2583290 3' similar to gb:1.07807<br>DYNAMIN-1 (HUMAN);               |
| 3380                   | 16552                 | 29566             | 0.66                 | 4.5E-01                                       | AW083781.1               | EST_HUMAN                     | xc25c08.x1 NCL_CGAP_Cot18 Homo sapiens cDNA clone IMAGE:2583290 3' similar to gb:1.07807<br>DYNAMIN-1 (HUMAN);               |
| 3393                   | 16563                 | 29578             | 4.46                 | 4.5E-01                                       | Q05783                   | SWISSPROT                     | BASEMENT MEMBRANE-SPECIFIC HEPARAN SULFATE PROTEOGLYCAN CORE PROTEIN   |
| 3466                   | 16862                 | 29651             | 1.51                 | 4.5E-01                                       | AF126378.1               | NT                            | PRECURSOR (HSPG) (PERLECAN) (PLC)  |
| 4139                   | 17291                 |                   | 1.18                 | 4.6E-01                                       | Q28247                   | SWISSPROT                     | Mus musculus DNA polymerase epsilon catalytic subunit (Pde) gene, exons 2 through 12   |
| 4186                   | 17396                 | 30329             | 1.02                 | 4.6E-01                                       | AJ708008.1               | EST_HUMAN                     | COLLAGEN ALPHA 5(V) CHAIN  |
| 4292                   | 18478                 |                   | 4.71                 | 4.5E-01                                       | AW873495.1               | EST_HUMAN                     | es086009.x1 Barstead acta_HPLR56 Homo sapiens cDNA clone IMAGE:2353480 3'  |
| 5058                   | 18186                 | 31161             | 1.18                 | 4.5E-01                                       | BE963445.2               | EST_HUMAN                     | hc60g02.x1 Soares NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:3041810 3'  |
| 5698                   | 18890                 | 32145             | 1.57                 | 4.5E-01                                       | AW608814.1               | EST_HUMAN                     | 607657225R1 NIH_MGC 67 Homo sapiens cDNA clone IMAGE:3868023 3'  |
| 6740                   | 18896                 |                   | 1.38                 | 4.5E-01                                       | Q00956                   | SWISSPROT                     | QV2-PT0012-140100-031-c08 PT0012 Homo sapiens cDNA<br>COAT PROTEIN   |
| 7571                   | 20643                 | 34120             | 0.91                 | 4.5E-01                                       | M37038.1                 | NT                            | Rat nuclear proteins B23.1 and B23.2   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 7785                   | 20841                 | 34333             | 2.39                 | 4.5E-01                                       | A858849.1                | EST_HUMAN                     | w32e02x1 NCI_CGAP_UH1 Homo sapiens cDNA clone IMAGE:2426618 5' similar to TR:Q82823 Q82823    |
| 8502                   | 21553                 |                   | 1.11                 | 4.5E-01                                       | M32001.1                 | NT                            | SW/USNF COMPLEX 170 KDA SUBUNIT.;   |
| 8508                   | 21670                 | 35217             | 2.87                 | 4.5E-01                                       | A848598.1                | EST_HUMAN                     | D.melanogaster Shaw2 protein mRNA, complete cds   |
|                        |                       |                   |                      |   |                          |                               | tz5g111x1 NCI_CGAP_Ov35 Homo sapiens cDNA clone IMAGE:2292844 3'                              |
| 8758                   | 21835                 | 35376             | 0.85                 | 4.5E-01                                       | Q52728                   | SWISSPROT                     | POLY-BETA-HYDROXYBUTYRATE POLYMERASE (POLY(3-HYDROXYBUTYRATE) POLYMERASE)                     |
| 8981                   | 22060                 |                   | 2.36                 | 4.5E-01                                       | 11444786                 | NT                            | (PHB POLYMERASE) (PHB SYNTHASE) (POLY(3-HYDROXYALKANOATE) POLYMERASE) (PHA                    |
| 9200                   | 22278                 | 35817             | 0.86                 | 4.5E-01                                       | AE000218.1               | NT                            | POLYMERASE) (PHA SYNTHASE) (POLYHYDROXYALKANOIC ACID SYNTHASE)                                |
| 10145                  | 23183                 |                   | 0.86                 | 4.5E-01                                       | 96303818                 | NT                            | Homo sapiens hypothetical protein DKFZp647G183 (DKFZp647G183), mRNA                           |
| 10713                  | 23746                 | 37352             | 25.59                | 4.5E-01                                       | M86006.1                 | EST_HUMAN                     | Escherichia coli K-12 MG1655 section 108 of 400 of the complete genome                        |
| 10713                  | 23746                 | 37353             | 25.59                | 4.5E-01                                       | M86006.1                 | EST_HUMAN                     | Bornbyrn nuclear polyhedrosis virus, complete genome  |
| 11104                  | 24176                 | 37812             | 2.52                 | 4.5E-01                                       | AW581271.1               | EST_HUMAN                     | EST02531 Fetal brain, Striatum (cat#336206) Homo sapiens cDNA clone HFBCY17                   |
| 11225                  | 24294                 | 37835             | 2.16                 | 4.5E-01                                       | 11430789                 | NT                            | EST02531 Fetal brain, Striatum (cat#336206) Homo sapiens cDNA clone HFBCY17                   |
| 11530                  | 24586                 |                   | 1.3                  | 4.6E-01                                       | AV716982.1               | EST_HUMAN                     | EST02531 Fetal brain, Striatum (cat#336206) Homo sapiens cDNA clone HFBCY17                   |
| 12164                  | 26102                 |                   | 5.58                 | 4.5E-01                                       | BE871461.1               | EST_HUMAN                     | EST02531 Fetal brain, Striatum (cat#336206) Homo sapiens cDNA clone HFBCY17                   |
| 12895                  | 25582                 |                   | 1.2                  | 4.5E-01                                       | BF337531.1               | EST_HUMAN                     | EST02531 Fetal brain, Striatum (cat#336206) Homo sapiens cDNA clone HFBCY17                   |
| 12970                  | 25830                 |                   | 12.42                | 4.5E-01                                       | 11422089                 | NT                            | EST02531 Fetal brain, Striatum (cat#336206) Homo sapiens cDNA clone HFBCY17                   |
| 2094                   | 15294                 |                   | 1.11                 | 4.4E-01                                       | 8890503                  | NT                            | EST02531 Fetal brain, Striatum (cat#336206) Homo sapiens cDNA clone HFBCY17                   |
| 2462                   | 15588                 | 28715             | 4.18                 | 4.4E-01                                       | P48765                   | SWISSPROT                     | Q84252 VIRAL INTEGRATION SITE PROTEIN INT-6, [1];   |
| 3390                   | 16560                 | 28575             | 1.54                 | 4.4E-01                                       | AF058780.1               | NT                            | Homo sapiens cadherin 3, P-cadherin (placental) (CDH3), mRNA                                  |
| 3390                   | 16560                 | 28578             | 1.54                 | 4.4E-01                                       | AF058790.1               | NT                            | AV716982 GLC Homo sapiens cDNA clone GLCCE12 5'   |
| 3395                   | 16595                 | 28580             | 2.12                 | 4.4E-01                                       | BF056726.1               | EST_HUMAN                     | AV716982 GLC Homo sapiens cDNA clone GLCCE12 5'   |
| 4349                   | 17482                 |                   | 1.35                 | 4.4E-01                                       | BE378707.1               | EST_HUMAN                     | 601449201F1 NIH_MGC_65 Homo sapiens cDNA clone IMAGE:3852981 5'                               |
| 5536                   | 18733                 | 31749             | 1.31                 | 4.4E-01                                       | P04629                   | SWISSPROT                     | 602095275F1 NCI_CGAP_Brn84 Homo sapiens cDNA clone IMAGE:4183290 5'                           |
| 5536                   | 18733                 | 31750             | 1.31                 | 4.4E-01                                       | P04629                   | SWISSPROT                     | Homo sapiens testis-specific kinase 2 (TESK2), mRNA   |
| 5805                   | 18895                 | 32300             | 1.58                 | 4.4E-01                                       | S95019.1                 | NT                            | Homo sapiens Integral membrane-associated protein 1 (Itmap1), mRNA                            |
| 5823                   | 19013                 | 32318             | 1.81                 | 4.4E-01                                       | AV720408.1               | EST_HUMAN                     | Mus musculus Integral membrane-associated protein 1 (Itmap1), mRNA                            |
| 6074                   | 19256                 | 32584             | 1.12                 | 4.4E-01                                       | AI108413.1               | EST_HUMAN                     | VASCULAR ENDOTHELIAL GROWTH FACTOR B PRECURSOR (VEGF-B) (VEGF RELATED FACTOR)                 |
|                        |                       |                   |                      |   |                          |                               | FACTOR)   |
|                        |                       |                   |                      |   |                          |                               | Rattus norvegicus SynGAP-b mRNA, complete cds   |
|                        |                       |                   |                      |   |                          |                               | Rattus norvegicus SynGAP-b mRNA, complete cds   |
|                        |                       |                   |                      |   |                          |                               | 791402.Y1 NCI_CGAP_B-16 Homo sapiens cDNA clone IMAGE:3393795 5'                              |
|                        |                       |                   |                      |   |                          |                               | 601237139F1 NIH_MGC_44 Homo sapiens cDNA clone IMAGE:3608983 5'                               |
|                        |                       |                   |                      |   |                          |                               | HISTIDINE-RICH GLYCOPROTEIN PRECURSOR   |
|                        |                       |                   |                      |   |                          |                               | HISTIDINE-RICH GLYCOPROTEIN PRECURSOR   |
|                        |                       |                   |                      |   |                          |                               | much [rats, Sprague-Dawley, sulfur-dioxide-treated tracheal epithelium, mRNA Partial, 380 nt] |
|                        |                       |                   |                      |   |                          |                               | AV720408 GLC Homo sapiens cDNA clone GLCSC12 5'   |
|                        |                       |                   |                      |   |                          |                               | Q84211.1 NCI_CGAP_Brn25 Homo sapiens cDNA clone IMAGE:1801125 3' similar to TR:Q29168 Q29168  |
|                        |                       |                   |                      |   |                          |                               | UNKNOWN PROTEIN;  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 6074                   | 19258                 | 32585             | 1.12                 | 4.4E-01                                       | AI198413.1               | EST_HUMAN                     | q02h1.1x1 NCI CGAP_Bir25 Homo sapiens cDNA clone IMAGE:1861125 3' similar to TR:Q28168 Q28168<br>UNKNOWN PROTEIN ;                        |
| 6370                   | 19339                 | 32898             | 1.07                 | 4.4E-01                                       | AW080785.1               | EST_HUMAN                     | xc27e08.x1 NCI CGAP_Co18 Homo sapiens cDNA clone IMAGE:2585510 3' similar to TR:O05154 O05154<br>AF1AT0XIN B1-ALDEHYDE REDUCTASE ;        |
| 6458                   | 19825                 |                   | 1.05                 | 4.4E-01                                       | AA776132.1               | EST_HUMAN                     | aa56d11.s1 Striatum scilzo brain S11 Homo sapiens cDNA clone IMAGE:970885 3' similar to gb:M16038<br>TYROSINE-PROTEIN KINASE LYN (HUMAN); |
| 7567                   | 20329                 | 34104             | 1.14                 | 4.4E-01                                       | AE090571.1               | NT                            | Helicobacter pylori 26895 section 49 of 134 of the complete genome  |
| 8024                   | 21107                 |                   | 12.3                 | 4.4E-01                                       | Z11678.1                 | NT                            | S. tuberosum mRNA for induced stolon tip protein (partial)  |
| 8862                   | 22041                 | 35584             | 1.11                 | 4.4E-01                                       | AA056427.1               | EST_HUMAN                     | z69a03.s1 Striatum colon (#837204) Homo sapiens cDNA clone IMAGE:508336 3'  |
| 8852                   | 22427                 | 35885             | 0.78                 | 4.4E-01                                       | AF112540.1               | NT                            | HIV-1 isolate 08107v6 from USA, envelope glycoprotein (env) gene, partial cds   |
| 9385                   | 22460                 | 36023             | 0.62                 | 4.4E-01                                       | AW812578.1               | EST_HUMAN                     | hh05d08.x1 NCI CGAP_Kd11 Homo sapiens cDNA clone IMAGE:2954222 3' similar to<br>SW MASH6 HUMAN P62701 DNA MISMATCH REPAIR PROTEIN MSH6 ;  |
| 9490                   | 22547                 | 36110             | 1.13                 | 4.4E-01                                       | O62836                   | SWISSPROT                     | ZINC FINGER X-CHROMOSOMAL PROTEIN   |
| 10167                  | 23204                 | 36788             | 1.95                 | 4.4E-01                                       | AI288650.1               | EST_HUMAN                     | q08f09.x1 NCI CGAP_Lu5 Homo sapiens cDNA clone IMAGE:1910921 3'   |
| 10168                  | 23205                 |                   | 2.09                 | 4.4E-01                                       | P28822                   | SWISSPROT                     | GLYCOPROTEIN B PRECURSOR (GLYCOPROTEIN 14)  |
| 10302                  | 23337                 | 36942             | 4.94                 | 4.4E-01                                       | P36590                   | SWISSPROT                     | TYROSINE-PROTEIN KINASE RECEPTOR TIE-1 PRECURSOR  |
| 10585                  | 23620                 | 37228             | 1.78                 | 4.4E-01                                       | S78404.1                 | NT                            | beta-HKA=H,K-ATPase beta-subunit [rats, Genomic, 8983 nt, segment 2 of 2]   |
| 10585                  | 23620                 | 37227             | 1.78                 | 4.4E-01                                       | S78404.1                 | NT                            | beta-HKA=H,K-ATPase beta-subunit [rats, Genomic, 8983 nt, segment 2 of 2]   |
| 10829                  | 23882                 | 37486             | 0.48                 | 4.4E-01                                       | P02716                   | SWISSPROT                     | ACE-TYLCHOLINE RECEPTOR PROTEIN, DELTA CHAIN PRECURSOR  |
| 11522                  | 24578                 | 38256             | 1.64                 | 4.4E-01                                       | 6691408                  | NT                            | Tetrahymena telum mitochondrion, complete genome  |
| 12435                  | 25308                 | 32087             | 4.23                 | 4.4E-01                                       | 6677874                  | NT                            | Mus musculus sodium channel, type X, alpha polypeptide (Scn10a), mRNA   |
| 12447                  | 26084                 |                   | 13.47                | 4.4E-01                                       | AL183282.2               | NT                            | Homo sapiens chromosome 21 segment HS21C082   |
| 13051                  | 26689                 |                   | 1.41                 | 4.4E-01                                       | P54725                   | SWISSPROT                     | UV EXCISION REPAIR PROTEIN PROTEIN RAD23 HOMOLOG A (HHR23A)   |
| 424                    | 13618                 | 26659             | 2.42                 | 4.3E-01                                       | AF15218.1                | NT                            | Callithrix jacchus MW/LW opsin gene, upstream flanking region   |
| 424                    | 13619                 | 26680             | 2.42                 | 4.3E-01                                       | AF15218.1                | NT                            | Callithrix jacchus MW/LW opsin gene, upstream flanking region   |
| 1633                   | 14785                 | 27871             | 1.11                 | 4.3E-01                                       | AW868580.1               | EST_HUMAN                     | QV4-SN0024-200400-183-601 SN0024 Homo sapiens cDNA  |
| 2635                   | 10112                 |                   | 1.34                 | 4.3E-01                                       | AW935289.1               | EST_HUMAN                     | CM2-OT0003-010200-077-c01 DT0003 Homo sapiens cDNA  |
| 3127                   | 16303                 | 28316             | 0.95                 | 4.3E-01                                       | AW869477.1               | EST_HUMAN                     | MFO-BN0070-270300-008-g04 BN0070 Homo sapiens cDNA  |
| 4526                   | 13619                 | 26659             | 1.27                 | 4.3E-01                                       | AF15218.1                | NT                            | Callithrix jacchus MW/LW opsin gene, upstream flanking region   |
| 4526                   | 13619                 | 26680             | 1.27                 | 4.3E-01                                       | AF15218.1                | NT                            | Callithrix jacchus MW/LW opsin gene, upstream flanking region   |
| 5071                   | 18189                 |                   | 1.04                 | 4.3E-01                                       | AL101502.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 14   |
| 6220                   | 18342                 |                   | 0.94                 | 4.3E-01                                       | 9635250                  | NT                            | Xestia c-nigrum granulovirus, complete genome   |
| 6480                   | 18679                 | 31693             | 0.95                 | 4.3E-01                                       | P48634                   | SWISSPROT                     | LARGE PROLINE-RICH PROTEIN BAT2 (HLA-B-ASSOCIATED TRANSCRIPT 2)   |
| 5480                   | 18679                 | 31694             | 0.95                 | 4.3E-01                                       | P48634                   | SWISSPROT                     | LARGE PROLINE-RICH PROTEIN BAT2 (HLA-B-ASSOCIATED TRANSCRIPT 2)   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 6009                   | 19194                 | 92512             | 1.31                 | 4.3E-01                                       | BE181665.1               | EST_HUMAN                     | QV1-HT0638-070500-191-d08 HT0638 Homo sapiens cDNA   |
| 6027                   | 19210                 | 92530             | 1.89                 | 4.3E-01                                       | AF179825.1               | NT                            | Samnini lectin receptor (SSC186) gene, partial cds   |
| 6847                   | 20000                 | 33408             | 3.1                  | 4.3E-01                                       | AJ001678.1               | NT                            | Ootumuk codumuk japonica linG gene   |
| 6825                   | 20240                 | 33675             | 0.67                 | 4.3E-01                                       | AF075629.1               | NT                            | Equus caballus microsatellite LEX027   |
| 7005                   | 20141                 |                   | 0.77                 | 4.3E-01                                       | Q93367                   | SWISSPROT                     | DNA GYRASE SUBUNIT B   |
| 7588                   | 20658                 |                   | 1.28                 | 4.3E-01                                       | BF348001.1               | EST_HUMAN                     | 802023134F1 NCL CGAP_Bum67 Homo sapiens cDNA clone IMAGE:4158298 5'                        |
| 8022                   | 21702                 |                   | 3.15                 | 4.3E-01                                       | U97040.1                 | NT                            | Methanococcus voltae flagella-related protein C-1 (flaC-fla) genes, complete cds           |
| 8455                   | 22571                 | 96137             | 1.02                 | 4.3E-01                                       | Y14604.1                 | NT                            | Erwinia amylovora resA gene  |
| 8928                   | 22968                 | 96556             | 2.36                 | 4.3E-01                                       | AW630048.1               | EST_HUMAN                     | hh74610.y1 NCL CGAP_GU1 Homo sapiens cDNA clone IMAGE:2888554 5'                           |
| 8928                   | 22968                 | 96557             | 2.36                 | 4.3E-01                                       | AW630048.1               | EST_HUMAN                     | hh74610.y1 NCL CGAP_GU1 Homo sapiens cDNA clone IMAGE:2888554 5'                           |
| 10433                  | 23468                 | 37075             | 0.99                 | 4.3E-01                                       | AW170558.1               | EST_HUMAN                     | nt63405.x1 Soares_NHCac_cervical_tumor Homo sapiens cDNA clone IMAGE:2698400 3' similar to |
| 11172                  | 20240                 | 33675             | 2.27                 | 4.3E-01                                       | AF075629.1               | NT                            | TR-O00189 O00189 MU-ADAPTIN-RELATED PROTEIN 2 ;  |
| 13162                  | 25754                 |                   | 1.66                 | 4.3E-01                                       | AJ003022.1               | NT                            | Equus caballus microsatellite LEX027   |
| 1389                   | 16036                 | 27616             | 1.17                 | 4.2E-01                                       | Q93102                   | SWISSPROT                     | Streptomyces coelicolor whiH gene  |
| 2002                   | 15143                 |                   | 1.02                 | 4.2E-01                                       | AA761653.1               | EST_HUMAN                     | CELL DIVISION PROTEIN FISH HOMOLOG PREGURSOR   |
| 3687                   | 16858                 | 28882             | 4.1                  | 4.2E-01                                       | AE003947.1               | NT                            | nz24409.st NCL CGAP_GC81 Homo sapiens cDNA clone IMAGE:1288686 3'                          |
| 3727                   | 16888                 | 28892             | 1.09                 | 4.2E-01                                       | AJ280338.1               | EST_HUMAN                     | Xylella fastidiosa, section 93 of 229 of the complete genome                               |
| 3803                   | 18477                 |                   | 0.73                 | 4.2E-01                                       | NB1203.1                 | EST_HUMAN                     | q94501.x1 Soares_NHIMPu_S1 Homo sapiens cDNA clone IMAGE:1878945 3'                        |
| 3984                   | 17141                 | 30146             | 0.74                 | 4.2E-01                                       | AW835527.1               | EST_HUMAN                     | 788IE1 fetal brain cDNA Homo sapiens cDNA clone 788IE1-K similar to R07879, Z40468         |
| 4819                   | 17952                 | 30837             | 2.57                 | 4.2E-01                                       | AAB34093.1               | EST_HUMAN                     | QVQ-LT0015-180200-127-h01 LT0015 Homo sapiens cDNA   |
| 4903                   | 18033                 | 31022             | 3.8                  | 4.2E-01                                       | R13467.1                 | EST_HUMAN                     | II HISTOCOMPATIBILITY ANTIGEN, DR-1 BETA CHAIN (HUMAN);                                    |
| 5832                   | 19023                 | 32330             | 1.42                 | 4.2E-01                                       | BF242055.1               | EST_HUMAN                     | y77601.1 Soares infant brain 1NIB Homo sapiens cDNA clone IMAGE:28278 5'                   |
| 5801                   | 18080                 | 32404             | 1.63                 | 4.2E-01                                       | AW854182.1               | EST_HUMAN                     | 601879721F1 NIH_MGC_55 Homo sapiens cDNA clone IMAGE:4108493 5'                            |
| 6334                   | 19505                 | 32883             | 0.89                 | 4.2E-01                                       | AL163247.2               | NT                            | RC3-CT0254-060400-028-g04 CT0254 Homo sapiens cDNA   |
| 7060                   | 20184                 | 33608             | 8.72                 | 4.2E-01                                       | AJ158472.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C047  |
| 7080                   | 20184                 | 33609             | 8.72                 | 4.2E-01                                       | AJ158472.1               | EST_HUMAN                     | AJ158472 PLAGE2 Homo sapiens cDNA clone PLACE2000470 3'                                    |
| 7151                   | 25859                 | 33727             | 3.21                 | 4.2E-01                                       | S82604.1                 | NT                            | AJ158472 PLAGE2 Homo sapiens cDNA clone PLACE2000470 3'                                    |
| 7242                   | 20328                 | 33770             | 8.61                 | 4.2E-01                                       | AL161647.2               | NT                            | Brcal-breast cancer gene [rat, WF, spleen, Genomic, 419 nt, segment 2 of 2]                |
| 7745                   | 20805                 | 34294             | 0.81                 | 4.2E-01                                       | AL163282.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 47                              |
| 8182                   | 21284                 | 34788             | 4.01                 | 4.2E-01                                       | AW857448.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C052  |
| 8182                   | 21284                 | 34787             | 4.01                 | 4.2E-01                                       | AW857448.1               | EST_HUMAN                     | EST369413 IMAGE resequences, IMAGE Homo sapiens cDNA                                       |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 8401                   | 21482                 | 35010             | 0.72                 | 4.2E-01                                       | 4758038                  | NT                            | Homo sapiens cytochrome c oxidase subunit Vic (COX9C), nuclear gene encoding mitochondrial protein, mRNA   |
| 9511                   | 22578                 | 36141             | 0.51                 | 4.2E-01                                       | U57431.1                 | NT                            | Human cytomegalovirus early phosphoprotein p50 mRNA, complete cds  |
| 9511                   | 22578                 | 36142             | 0.51                 | 4.2E-01                                       | U57431.1                 | NT                            | Human cytomegalovirus early phosphoprotein p50 mRNA, complete cds  |
| 10176                  | 23212                 |                   | 0.81                 | 4.2E-01                                       | AA705007.1               | EST_HUMAN                     | 295501.s1 Soares_fetal_liver_spleen_1NF1.S_51 Homo sapiens cDNA clone IMAGE:462849 3'  |
| 10714                  | 23747                 | 37354             | 1.44                 | 4.2E-01                                       | AW686668.1               | EST_HUMAN                     | MR3-SN0010-280300-103-107 SN0010 Homo sapiens cDNA   |
| 11288                  | 24364                 | 39005             | 1.43                 | 4.2E-01                                       | AB023498.1               | NT                            | Oryzias latipes OIGC7 mRNA for membrane guanylyl cyclase, complete cds   |
| 11679                  | 24678                 | 38368             | 1.87                 | 4.2E-01                                       | BE986485.2               | EST_HUMAN                     | 601680352R1 NIH_MGC_71 Homo sapiens cDNA clone IMAGE:3806085 3'  |
| 1118                   | 14283                 | 27338             | 2.11                 | 4.1E-01                                       | AB05481.1                | EST_HUMAN                     | RC-BT091-210189-142 BT091 Homo sapiens cDNA  |
| 1127                   | 14282                 | 27347             | 1.46                 | 4.1E-01                                       | AV705243.1               | EST_HUMAN                     | AV705243 ADB Homo sapiens cDNA clone ADBAHF08 5'   |
| 1127                   | 14282                 | 27348             | 1.46                 | 4.1E-01                                       | AV705243.1               | EST_HUMAN                     | AV705243 ADB Homo sapiens cDNA clone ADBAHF08 5'   |
| 1640                   | 14792                 | 27877             | 1.77                 | 4.1E-01                                       | AB05949.1                | EST_HUMAN                     | PM-BT103-270499-684 BT103 Homo sapiens cDNA  |
| 2775                   | 15690                 | 29001             | 1.46                 | 4.1E-01                                       | 7705283                  | NT                            | Homo sapiens encephalosome-promoting complex subunit 7 (APC7), mRNA  |
| 3008                   | 16181                 | 29202             | 2.12                 | 4.1E-01                                       | AL101536.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 36  |
| 3008                   | 16181                 | 29203             | 2.12                 | 4.1E-01                                       | AL101536.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 36  |
| 3375                   | 16547                 | 29561             | 0.66                 | 4.1E-01                                       | AA906344.1               | EST_HUMAN                     | oj94508.s1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:1505943 3'  |
| 3871                   | 17030                 | 30028             | 0.73                 | 4.1E-01                                       | AW961282.1               | EST_HUMAN                     | EST1373364 MAGG Homo sapiens cDNA  |
| 3871                   | 17030                 | 30029             | 0.73                 | 4.1E-01                                       | AW961282.1               | EST_HUMAN                     | EST1373364 MAGG Homo sapiens cDNA  |
| 4389                   | 17532                 | 30513             | 3.78                 | 4.1E-01                                       | AJ249207.1               | NT                            | Rhodococcus sp. AD45 isoG, isoH, isoI, isoJ, isoK, isoL, isoM, isoN, isoO, isoP, isoQ, isoR, isoS, isoT, isoU, isoV, isoW, isoX, isoY, isoZ, isoAA, isoAB, isoAC, isoAD, isoAE and isoAF genes |
| 4422                   | 17663                 |                   | 0.99                 | 4.1E-01                                       | AA909257.1               | EST_HUMAN                     | om33402.s1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:1542818 3'  |
| 4789                   | 17924                 | 30912             | 1.36                 | 4.1E-01                                       | AV747880.1               | EST_HUMAN                     | AV747880 NPC Homo sapiens cDNA clone NPCBDF10 5'   |
| 6111                   | 19281                 | 32626             | 4.84                 | 4.1E-01                                       | BF681383.1               | EST_HUMAN                     | 602166690F1 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:4297319 5'  |
| 6857                   | 20010                 | 33420             | 0.65                 | 4.1E-01                                       | U02298.1                 | NT                            | Mus musculus NIH 3T3 chemodermatitis (Scy5) genes, complete cds  |
| 7580                   | 20661                 | 34137             | 2.48                 | 4.1E-01                                       | U67635.1                 | NT                            | Methanococcus Jannaschii section 77 of 150 of the complete genome  |
| 8225                   | 21307                 | 34827             | 1.36                 | 4.1E-01                                       | BF574604.1               | EST_HUMAN                     | 602133261F1 NIH_MGC_81 Homo sapiens cDNA clone IMAGE:4286238 5'  |
| 9282                   | 22868                 | 35918             | 1.61                 | 4.1E-01                                       | 6755521                  | NT                            | Mus musculus signaling intermediate in Toll pathway-evolutionarily conserved (Stipeo-pending), mRNA  |
| 9765                   | 22762                 |                   | 0.75                 | 4.1E-01                                       | AF160597.1               | NT                            | Vesaleo gymnosaurus Vgymf60 cytochrome b (cyb) gene, complete cds; mitochondrial gene for mitochondrial product  |
| 10470                  | 23015                 |                   | 1.56                 | 4.1E-01                                       | AL138076.2               | NT                            | Campylobacter jejuni NCTC11169 complete genome; segment 348  |
| 10622                  | 23656                 | 37266             | 1.15                 | 4.1E-01                                       | AV649579.1               | EST_HUMAN                     | AV649579 GLC Homo sapiens cDNA clone GLCBVD12 3'   |
| 10725                  | 23758                 | 37365             | 0.68                 | 4.1E-01                                       | P18594                   | SWISSPROT                     | PROBABLE SERINE PROTEASE DO-LIKE PRECURSOR (59 KDA IMMUNOGENIC PROTEIN) (SK59)   |
| 10725                  | 23758                 | 37366             | 0.68                 | 4.1E-01                                       | P18594                   | SWISSPROT                     | PROBABLE SERINE PROTEASE DO-LIKE PRECURSOR (59 KDA IMMUNOGENIC PROTEIN) (SK59)   |
| 10806                  | 23839                 |                   | 1.14                 | 4.1E-01                                       | BF349382.1               | EST_HUMAN                     | CN42-HT0137-200989-010-608 HT0137 Homo sapiens cDNA  |



Page 62 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 11078                  | 24153                 | 37790             | 40.17                | 4.1E-01                                       | X68700.1                 | NT                            | Zea mays-ZmFMS2 gene for 19 kDa zein protein  |
| 11675                  | 23903                 | 37525             | 1.88                 | 4.1E-01                                       | Q08470                   | SWISSPROT                     | VOLTAGE-GATED POTASSIUM CHANNEL PROTEIN KV1.1 (HUK1) (HBK1)   |
| 12810                  | 26139                 |                   | 2.33                 | 4.1E-01                                       | D87875.1                 | NT                            | Homo sapiens DNA for amyloid precursor protein, complete cds  |
| 13153                  | 26159                 |                   | 1.24                 | 4.1E-01                                       | AJ131016.1               | NT                            | Homo sapiens SCL gene locus   |
| 1084                   | 14229                 | 27286             | 1.49                 | 4.0E-01                                       | 8404858                  | NT                            | Laeetus rubellus mitochondrial, complete genome   |
| 1370                   | 14525                 | 27599             | 1.21                 | 4.0E-01                                       | AF203478.1               | NT                            | Drosophila melanogaster Dalmatian (dmt) mRNA, complete cds  |
| 1514                   | 14667                 |                   | 5.48                 | 4.0E-01                                       | 6879258                  | NT                            | Mus musculus platelet derived growth factor receptor, beta polypeptide (Pdgfrb), mRNA   |
| 2061                   | 16053                 | 28316             | 1.08                 | 4.0E-01                                       | Z96933.1                 | NT                            | Ascaris lumbricoides msc2 gene  |
| 2061                   | 16053                 | 28317             | 1.08                 | 4.0E-01                                       | Z96933.1                 | NT                            | Ascaris lumbricoides msc2 gene  |
| 2866                   | 13369                 | 28402             | 1.11                 | 4.0E-01                                       | 6878490                  | NT                            | Mus musculus ubiquitin-protein ligase e3 component n-recogin (Ubr1), mRNA   |
| 3033                   | 16209                 | 28231             | 1.18                 | 4.0E-01                                       | AL163280.2               | NT                            | Homo sapiens chromosome 21 segment HS21C080   |
| 3033                   | 16209                 | 28232             | 1.18                 | 4.0E-01                                       | AL163280.2               | NT                            | Homo sapiens chromosome 21 segment HS21C080   |
|                        |                       |                   |                      |   |                          |                               | Streptococcus pneumoniae Y1C (MIC), Y1D (MID), penicillin-binding protein 2x (pbp2x), and undecaprenyl-phosphate-UDP-MurNAc-pentapeptide phospho-MurNAc-pentapeptide transferase (mraY) genes, complete cds |
| 3788                   | 16947                 | 28955             | 1.87                 | 4.0E-01                                       | AF068803.1               | NT                            | Ovis aries partial JD2 gene for T cell receptor delta chain (TCRDJ2), exon 1  |
| 3932                   | 17091                 | 30088             | 3.21                 | 4.0E-01                                       | AJ277511.1               | NT                            | Ovis aries partial JD2 gene for T cell receptor delta chain (TCRDJ2), exon 1  |
| 3932                   | 17091                 | 30089             | 3.21                 | 4.0E-01                                       | AJ277511.1               | NT                            | NADH-FLASTOQUINONE OXIDOREDUCTASE CHAIN 5, CHLOROPLAST  |
| 4938                   | 18068                 |                   | 8.59                 | 4.0E-01                                       | Q31849                   | SWISSPROT                     | EST382891 MAGE resequencing, MAGK Homo sapiens cDNA   |
| 6031                   | 19214                 | 32535             | 1.07                 | 4.0E-01                                       | AW970610.1               | EST_HUMAN                     | STRUCTURAL POLYPEPTIDE (P130) [CONTAINS: COAT PROTEIN C; SPIKE GLYCOPROTEINS E3, E2 AND E1; 6 KD PEPTIDE]   |
| 6568                   | 19790                 | 33108             | 0.82                 | 4.0E-01                                       | P27285                   | SWISSPROT                     | E2 AND E1; 6 KD PEPTIDE   |
| 8113                   | 21195                 | 34714             | 0.51                 | 4.0E-01                                       | BF092634.1               | EST_HUMAN                     | MIR4-TN0110-180900-202-g02 TN0110 Homo sapiens cDNA   |
| 8201                   | 21263                 | 34806             | 0.79                 | 4.0E-01                                       | AB018826.1               | NT                            | Homo sapiens OCTN2 gene, complete cds   |
| 9208                   | 22286                 | 35827             | 1.11                 | 4.0E-01                                       | AA323289.1               | EST_HUMAN                     | EST26098 Cerebellum II Homo sapiens cDNA 5' and similar to EST containing Alu repeat  |
| 11889                  | 24857                 |                   | 1.67                 | 4.0E-01                                       | BF030262.1               | EST_HUMAN                     | 601558283F1 NIH_MGC B9 Homo sapiens cDNA clone IMAGE:3828082 5'   |
| 12021                  | 25006                 |                   | 2.38                 | 4.0E-01                                       | L76080.1                 | NT                            | Synechocystis sp. PCC 9413 transposase gene, complete cds   |
| 12463                  | 26978                 |                   | 2.5                  | 4.0E-01                                       | AL163300.2               | NT                            | Homo sapiens chromosome 21 segment HS21C100   |
| 13027                  | 26116                 |                   | 1.38                 | 4.0E-01                                       | Z48301.1                 | NT                            | S. cerevisiae chromosome X reading frame ORF YJL029w  |
| 13168                  | 26036                 |                   | 1.21                 | 4.0E-01                                       | BF43020.1                | EST_HUMAN                     | mb84405.1 Source_NSF_FB_9W_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:3' similar to   |
| 13222                  | 25907                 |                   | 1.26                 | 4.0E-01                                       | Z48301.1                 | NT                            | SW:NTCR_BOVIN_O18875 SODIUM- AND CHLORIDE-DEPENDENT CREATINE TRANSPORTER 1;   |
| 1408                   | 14563                 | 27638             | 1.84                 | 3.9E-01                                       | AF206918.1               | NT                            | S. cerevisiae chromosome X reading frame ORF YJL029w  |
| 2707                   | 15825                 | 28940             | 3.34                 | 3.9E-01                                       | AB033019.1               | NT                            | Gorilla gorilla carboxyl-ester lipase (CEL) gene, complete cds  |
| 2770                   | 15885                 | 28994             | 5.03                 | 3.9E-01                                       | X82032.1                 | NT                            | Homo sapiens mRNA for KIAA1193 protein, partial cds   |
|                        |                       |                   |                      |   |                          |                               | H. sapiens B-myb gene   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 2770                   | 15885                 | 28996             | 6.03                 | 3.9E-01                                       | X82032.1                 | NT                            | H.sapiens B-myb gene   |
| 3166                   | 16341                 | 28949             | 4.24                 | 3.9E-01                                       | AJ226908.1               | NT                            | Sinorhizobium meliloti epl_syrB2, cys3 genes and orf3  |
| 4180                   | 17340                 | 30333             | 1.48                 | 3.9E-01                                       | BF592811.1               | EST_HUMAN                     | 7B1d01.x1 NCJ_CGAP_Br16 Homo sapiens cDNA clone IMAGE:3339160 3'   |
| 5106                   | 18234                 | 31203             | 1.47                 | 3.9E-01                                       | BE728667.1               | EST_HUMAN                     | 601583948F1 NIH_MGC_20 Homo sapiens cDNA clone IMAGE:3883660 5'  |
| 6055                   | 19237                 | 32562             | 4.58                 | 3.9E-01                                       | BF208036.1               | EST_HUMAN                     | 601862302F1 NIH_MGC_53 Homo sapiens cDNA clone IMAGE:4082055 5'  |
| 9410                   | 19578                 | 32940             | 0.64                 | 3.9E-01                                       | U82895.2                 | NT                            | Homo sapiens zinc finger protein 92 (ZFP92), expressed-Xq28STS protein (XQ28ORF), and biglycan (BGN) genes, complete cds; and plasma membrane calcium ATPase isoform 3 (PMCA3) gene, partial cds |
| 8140                   | 21222                 | 34740             | 0.89                 | 3.9E-01                                       | U79415.1                 | NT                            | Homo sapiens prepro dipeptidyl peptidase I (DPP-I) gene, complete cds  |
| 9062                   | 22141                 | 35686             | 0.83                 | 3.9E-01                                       | AW177011.1               | EST_HUMAN                     | CN3-CT0105-170889-004-008 CT0105 Homo sapiens cDNA   |
| 9071                   | 22150                 |                   | 0.82                 | 3.9E-01                                       | BF348634.1               | EST_HUMAN                     | 602018944F1 NCJ_CGAP_Bm67 Homo sapiens cDNA clone IMAGE:4155322 5'   |
| 9435                   | 22508                 | 36075             | 1.73                 | 3.9E-01                                       | AW185888.1               | EST_HUMAN                     | xm8cd04.x1 Scores_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2701351 3' similar to TR:084821   |
| 9745                   | 22809                 | 36387             | 1.59                 | 3.9E-01                                       | A1937337.1               | EST_HUMAN                     | 004821 KIAA0713 PROTEIN ;  |
| 10082                  | 23120                 | 36722             | 2.88                 | 3.9E-01                                       | M19879.1                 | NT                            | wp76a02.x1 NCJ_CGAP_Bm25 Homo sapiens cDNA clone IMAGE:2467658 3' similar to   |
| 10150                  | 23188                 |                   | 0.58                 | 3.9E-01                                       | D86722.1                 | NT                            | SW RFX5_HUMAN P48382 BINDING REGULATORY FACTOR ;   |
| 10369                  | 23404                 | 37015             | 0.92                 | 3.9E-01                                       | D86722.1                 | NT                            | Human clabindin 27 gene, exons 10 and 11, and L1 and Alu repeats   |
| 10362                  | 23697                 | 37203             | 0.61                 | 3.9E-01                                       | BF361856.1               | EST_HUMAN                     | Porphyra purpurea mitochondrion, complete genome   |
| 10362                  | 23697                 | 37204             | 0.61                 | 3.9E-01                                       | BF361856.1               | EST_HUMAN                     | Nicotiana tabacum mRNA for TATA binding protein (TBP), complete cds  |
| 10368                  | 23699                 |                   | 0.47                 | 3.9E-01                                       | AB037832.1               | NT                            | CN2-NN0034-030600-218-h04 NN0034 Homo sapiens cDNA   |
| 11059                  | 24135                 |                   | 1.37                 | 3.9E-01                                       | AV698974.1               | EST_HUMAN                     | CN2-NN0034-030600-218-h04 NN0034 Homo sapiens cDNA   |
| 12049                  | 25030                 | 38730             | 1.89                 | 3.9E-01                                       | AV702823.1               | EST_HUMAN                     | Homo sapiens mRNA for KIAA1411 protein, partial cds  |
| 12221                  | 26055                 |                   | 4.03                 | 3.9E-01                                       | AF304354.1               | NT                            | AV686974 GK Homo sapiens cDNA clone GKCBQG11 5'  |
| 12918                  | 26603                 |                   | 1.76                 | 3.9E-01                                       | AF304354.1               | NT                            | AV702823 ADB Homo sapiens cDNA clone ADBDBE06 5'   |
| 164                    | 13389                 |                   | 7.58                 | 3.8E-01                                       |                          | NT                            | Homo sapiens proteoglycan 3 (PRG3) gene, complete cds  |
| 618                    | 13711                 |                   | 6.1                  | 3.8E-01                                       | AB020291.1               | NT                            | Homo sapiens hypothetical protein FLJ10583 (FLJ10583), mRNA  |
| 1919                   | 15062                 |                   | 1.98                 | 3.8E-01                                       | AE003870.1               | NT                            | Homo sapiens protein kinase PKNbeta (pknbeta), mRNA  |
| 2637                   | 15700                 | 28674             | 1.84                 | 3.8E-01                                       | AF214117.1               | NT                            | Mus musculus pom-1 mRNA for pericentriolar material-1, complete cds  |
| 2687                   | 16059                 | 28801             | 5.2                  | 3.8E-01                                       |                          | NT                            | Xyella fastidiosa, section 16 of 229 of the complete genome  |
| 3068                   | 16242                 |                   | 0.71                 | 3.8E-01                                       | AJ251057.1               | NT                            | Arabidopsis thaliana putative c-myc-like transcription factor (MYB3R-3) mRNA, complete cds   |
| 3113                   | 16269                 | 28306             | 1.91                 | 3.8E-01                                       | AF049383.1               | NT                            | Mus musculus solute carrier family 1, member 6 (Slc1s6), mRNA  |
| 3572                   | 16737                 | 28752             | 8.7                  | 3.8E-01                                       | AL181618.2               | NT                            | Human immunodeficiency virus type 1 complete genome (isolate 89SE-MP1213)  |
| 3628                   | 16762                 |                   | 1.09                 | 3.8E-01                                       | AB07219.1                | EST_HUMAN                     | Plasmodium americanus aminopeptidase N (amprN) gene, partial cds   |
|                        |                       |                   |                      |   |                          |                               | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 30  |
|                        |                       |                   |                      |   |                          |                               | wf35b12.x1 Scores_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2567855 3'  |

Page 64 of 550

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 3843                   | 16702                 |                   | 0.97                 | 3.8E-01                                       | AI807218.1               | EST_HUMAN                     | w38b12.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2357855 3'  |
| 3852                   | 17012                 | 30012             | 1.07                 | 3.8E-01                                       | BE164080.1               | EST_HUMAN                     | PMO-HT0339-200400-010-G01 HT0339 Homo sapiens cDNA  |
| 4027                   | 17183                 | 30182             | 0.65                 | 3.8E-01                                       | 6754095                  | NT                            | Mus musculus general transcription factor II I (G82), mRNA  |
| 5727                   | 18820                 | 32214             | 1.11                 | 3.8E-01                                       | Q04688                   | SWISSPROT                     | TRANSCRIPTION FACTOR SOX-10   |
| 6469                   | 18838                 |                   | 0.63                 | 3.8E-01                                       | S48825.1                 | NT                            | p16 <sup>INK</sup> protein [mink, Genomic, 2446 nt]   |
| 6761                   | 18917                 | 33312             | 5.74                 | 3.8E-01                                       | BE072389.1               | EST_HUMAN                     | QV3-BT0537-271292-049-e02 BT0537 Homo sapiens cDNA  |
| 6899                   | 20214                 | 33844             | 4.39                 | 3.8E-01                                       | AI374001.1               | EST_HUMAN                     | tas4f11.x1 Soares_fetal_fetus_Nb2H8_9w Homo sapiens cDNA clone IMAGE:2047817 3' similar to contains Alu repetitive element  |
| 7079                   | 20132                 | 33849             | 1.38                 | 3.8E-01                                       | AL101613.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 25   |
| 7685                   | 20750                 |                   | 4.27                 | 3.8E-01                                       | X61597.1                 | NT                            | M. musculus gene for kallikrein-binding protein   |
| 8493                   | 21674                 | 35111             | 0.64                 | 3.8E-01                                       | IM81385.1                | NT                            | Mouse liver receptor homologous protein (LRH-1) mRNA, complete cds  |
| 8764                   | 21833                 | 36373             | 2.04                 | 3.8E-01                                       | AB048851.1               | NT                            | Homo sapiens mRNA for KIAA1631 protein, partial cds   |
| 8826                   | 21905                 | 35444             | 1.08                 | 3.8E-01                                       | 11441264                 | NT                            | Homo sapiens FOS-like antigen-1 (FOSL1), mRNA   |
| 9017                   | 22090                 | 35636             | 1.29                 | 3.8E-01                                       | AL103279.2               | NT                            | Homo sapiens chromosome 21 segment HS21C079   |
| 9761                   | 22899                 |                   | 4.35                 | 3.8E-01                                       | T95413.1                 | EST_HUMAN                     | ye43h06.r1 Soares_fetal_liver spleen 1N1S Homo sapiens cDNA clone IMAGE:120538 5' similar to contains Alu repetitive element/contains PTR5 repetitive element:  |
| 11034                  | 24113                 |                   | 1.38                 | 3.8E-01                                       | AV755814.1               | EST_HUMAN                     | AV755814 BM Homo sapiens cDNA clone BMFBCE07 5'   |
| 11699                  | 24696                 | 36398             | 1.67                 | 3.8E-01                                       | U82871.2                 | NT                            | Homo sapiens chromosome Xq28 melanoma antigen family A2a (MAGEA2A), melanoma antigen family A12 (MAGEA12), melanoma antigen family A2b (MAGEA2B), melanoma antigen family A3 (MAGEA3), calretinin (CALT), NAD(P)H dehydrogenase-like protein (NSDHL), and L1> |
| 11824                  | 24813                 |                   | 2.87                 | 3.8E-01                                       | BE19219.1                | EST_HUMAN                     | RCO-HT0841-040800-032-b12 HT0841 Homo sapiens cDNA  |
| 11892                  | 24977                 | 36681             | 2.6                  | 3.8E-01                                       | RA23590.1                | EST_HUMAN                     | y92h11.s1 Soares_infant_brain 1N1B Homo sapiens cDNA clone IMAGE:30289 3'   |
| 11892                  | 24977                 | 36682             | 2.6                  | 3.8E-01                                       | RA23590.1                | EST_HUMAN                     | y92h11.s1 Soares_infant_brain 1N1B Homo sapiens cDNA clone IMAGE:30289 3'   |
| 12490                  | 25309                 |                   | 2.61                 | 3.8E-01                                       | AE001124.1               | NT                            | Borrelia burgdorferi (section 10 of 70) of the complete genome  |
| 12589                  | 26082                 |                   | 2                    | 3.8E-01                                       | U94788.1                 | NT                            | Human p53 (TP53) gene, complete cds   |
| 12895                  | 25463                 |                   | 1.71                 | 3.8E-01                                       | BE328256.1               | EST_HUMAN                     | QV3-ET0063-190700-271-a05 ET0063 Homo sapiens cDNA  |
| 13105                  | 25720                 |                   | 1.48                 | 3.8E-01                                       | U78031.1                 | NT                            | Mus musculus apoptosis inhibitor bcl-x (bcl-x) gene, exon 3 and complete cds  |
| 13188                  | 25772                 | 31633             | 1.78                 | 3.8E-01                                       | AF104972.1               | NT                            | Mus musculus developmental control protein mRNA, partial cds  |
| 2551                   | 15678                 | 28759             | 12.91                | 3.7E-01                                       | AB037831.1               | NT                            | Homo sapiens mRNA for KIAA1410 protein, partial cds   |
| 3549                   | 16714                 | 29720             | 10.67                | 3.7E-01                                       | AF068336.1               | NT                            | Danio rerio bone morphogenetic protein 4 precursor (BMP4) gene, complete cds  |
| 3974                   | 17131                 | 30135             | 1.09                 | 3.7E-01                                       | AA319482.1               | EST_HUMAN                     | EST21715 Adrenal gland tumor Homo sapiens cDNA 5' and   |
| 4344                   | 17487                 | 30470             | 9.09                 | 3.7E-01                                       | AI218707.1               | EST_HUMAN                     | ok39c07.x1 Soares_NSJ_F8_9W_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:1510188 3'   |
| 4440                   | 17580                 | 30559             | 1.31                 | 3.7E-01                                       | AW878037.1               | EST_HUMAN                     | MP3-OT0007-080300-104-b02 OT0007 Homo sapiens cDNA  |
| 4509                   | 17648                 | 30638             | 2.91                 | 3.7E-01                                       | AE002408.1               | NT                            | Neisseria meningitidis serogroup B strain MC58 section 60 of 206 of the complete genome   |

Page 65 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 5280                   | 18399                 | 31388             | 0.74                 | 3.7E-01                                       | T12298.1                 | EST_HUMAN                     | A033R Heart Homo sapiens cDNA clone A033   |
| 5280                   | 18399                 | 31388             | 0.74                 | 3.7E-01                                       | T12298.1                 | EST_HUMAN                     | A033R Heart Homo sapiens cDNA clone A033   |
| 5883                   | 18072                 | 32380             | 1.27                 | 3.7E-01                                       | AF135187.1               | NT                            | Homo sapiens interferon-induced protein p78 (MX1) gene, complete cds                   |
| 6071                   | 18253                 | 32582             | 1.25                 | 3.7E-01                                       | AL163278.2               | NT                            | Homo sapiens chromosome 21 segment H921C078  |
| 6639                   | 18798                 | 33187             | 0.7                  | 3.7E-01                                       | M1808.1                  | NT                            | Chicken (White leghorn) delta-1 and delta-2 crystallin genes, complete cds             |
| 6680                   | 18819                 |                   | 0.8                  | 3.7E-01                                       | L10363.1                 | NT                            | Mus saxicola heptoglobin mRNA, complete cds  |
| 7293                   | 20375                 | 33832             | 3.48                 | 3.7E-01                                       | 115258.43                | NT                            | Homo sapiens tumor endothelial marker 7 precursor (TEM7), mRNA                         |
| 7886                   | 21015                 | 34527             | 0.69                 | 3.7E-01                                       | T68802.1                 | EST_HUMAN                     | yes50a07.3 Scores fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:68324.5'      |
| 8524                   | 21605                 | 35143             | 1.98                 | 3.7E-01                                       | 11436739                 | NT                            | Homo sapiens chromosome 12 open reading frame 4 (C12ORF4), mRNA                        |
| 8524                   | 21605                 | 35144             | 1.96                 | 3.7E-01                                       | 11436739                 | NT                            | Homo sapiens chromosome 12 open reading frame 4 (C12ORF4), mRNA                        |
| 8580                   | 21641                 | 35180             | 0.68                 | 3.7E-01                                       | AA902912.1               | EST_HUMAN                     | ok43b11.s1 NCI_CGAP_Jel2 Homo sapiens cDNA clone IMAGE:1518701.3'                      |
| 9402                   | 22476                 |                   | 1.34                 | 3.7E-01                                       | AJ271386.1               | NT                            | Gallus gallus mRNA for beta-carotene 15,15'-dioxygenase (bCDO gene)                    |
| 10373                  | 23408                 |                   | 0.5                  | 3.7E-01                                       | K00691.1                 | NT                            | mouse Ig germline alpha membrane exon region   |
| 10414                  | 23449                 | 37054             | 4.21                 | 3.7E-01                                       | AI335411.1               | EST_HUMAN                     | q143a07.x1 Scores_fetal_lung_NiHL19W Homo sapiens cDNA clone IMAGE:1950987.3'          |
| 10783                  | 23816                 | 37437             | 0.46                 | 3.7E-01                                       | U08361.1                 | NT                            | HIV-1 RU1078 from Russia, gp120 V3-V5 region (env) gene, partial cds                   |
| 10783                  | 23816                 | 37438             | 0.46                 | 3.7E-01                                       | U08361.1                 | NT                            | HIV-1 RU1078 from Russia, gp120 V3-V5 region (env) gene, partial cds                   |
| 11097                  | 24170                 | 37805             | 1.8                  | 3.7E-01                                       | X0568.1                  | NT                            | Rabbit mRNA for fast skeletal muscle myosin heavy chain (MHC)                          |
| 11285                  | 24351                 | 37889             | 2.02                 | 3.7E-01                                       | AJ287357.1               | NT                            | Homo sapiens partial LIMD1 gene for LIM domains containing protein 1 and KIA00851 gene |
| 11285                  | 24351                 | 37890             | 2.02                 | 3.7E-01                                       | AJ287357.1               | NT                            | Homo sapiens partial LIMD1 gene for LIM domains containing protein 1 and KIA00851 gene |
| 11754                  | 23940                 | 37568             | 2.73                 | 3.7E-01                                       | X04122.1                 | NT                            | Bovine mRNA for terminal deoxynucleotidyltransferase (TdT) (EC 2.7.7.31)               |
| 12004                  | 24989                 |                   | 1.42                 | 3.7E-01                                       | AA973640.1               | EST_HUMAN                     | 0046c03.s1 NCI_CGAP_L15 Homo sapiens cDNA clone IMAGE:1569221.3' similar to gb:M77686  |
| 12066                  | 25047                 |                   | 3.5                  | 3.7E-01                                       | 6877878                  | NT                            | TRANSSCRIPTIONAL REPRESSOR PROTEIN YY1 (HUMAN);  |
| 12137                  | 25654                 |                   | 1.17                 | 3.7E-01                                       | J04982.1                 | NT                            | Mus musculus retinoblastoma 1 (Rb1), mRNA  |
| 12314                  | 25229                 |                   | 3.94                 | 3.7E-01                                       | AJ243525.1               | NT                            | Human heart/skeletal muscle ATP/ADP translocator (ANT1) gene, complete cds             |
| 12410                  | 25289                 |                   | 1.82                 | 3.7E-01                                       | D89978.1                 | NT                            | Chlamydomonas reinhardtii partial omp1 gene for outer membrane protein 1               |
| 12821                  | 25548                 |                   | 2.94                 | 3.7E-01                                       | AL121154.1               | EST_HUMAN                     | Human mRNA for KIAA0223 gene, partial cds  |
| 12902                  | 25597                 | 31971             | 6.99                 | 3.7E-01                                       | Y18000.1                 | NT                            | DKFZp782K075.1 782 (synonym: hme2) Homo sapiens cDNA clone DKFZp782K075.5'             |
| 271                    | 13489                 | 26520             | 0.77                 | 3.6E-01                                       | AJ009609.1               | NT                            | Homo sapiens NF2 gene  |
| 1020                   | 14191                 |                   | 9.07                 | 3.6E-01                                       | U89241.1                 | NT                            | Brassica napus mRNA for MAP4K alpha2 protein   |
| 1342                   | 14498                 | 27570             | 3.97                 | 3.6E-01                                       | T80255.1                 | EST_HUMAN                     | Human m1p gene, partial cds  |
| 1342                   | 14498                 | 27571             | 3.97                 | 3.6E-01                                       | T80255.1                 | EST_HUMAN                     | yo03e05.l1 Scores infant brain INIB Homo sapiens cDNA clone IMAGE:24443.5'             |
| 1968                   | 15109                 | 28209             | 6.55                 | 3.6E-01                                       | AW590184.1               | EST_HUMAN                     | yo03e05.l1 Scores infant brain INIB Homo sapiens cDNA clone IMAGE:24443.5'             |
| 1968                   | 15109                 | 28210             | 6.55                 | 3.6E-01                                       | AW590184.1               | EST_HUMAN                     | hg33i02.x1 NCI_CGAP_GC08 Homo sapiens cDNA clone IMAGE:2847419.3'                      |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 2007                   | 16147                 | 28263             | 6.7                  | 3.6E-01                                       | AF218207.1               | NT                            | Mus musculus ribosomal protein S19 (Rps19) gene, complete cds   |
| 2113                   | 16261                 |                   | 1.15                 | 3.6E-01                                       | AF056827.1               | NT                            | Rattus norvegicus repeat element associated with the Rnagr1 gene  |
| 2343                   | 15474                 |                   | 2.33                 | 3.6E-01                                       | AB002321.1               | NT                            | Human mRNA for KIAA0323 gene, partial cds   |
| 2463                   | 15500                 |                   | 2.8                  | 3.6E-01                                       | X76726.1                 | NT                            | P. irregularis (P3804) gene for actin   |
| 2556                   | 15931                 | 28808             | 2.66                 | 3.6E-01                                       | AW812033.1               | EST_HUMAN                     | RC5-ST0171-181089-011-q07 ST0171 Homo sapiens cDNA  |
| 2694                   | 15914                 | 28929             | 1.89                 | 3.6E-01                                       | P24206                   | SWISSPROT                     | PROTEIN-L-ISOASPARTATE O-METHYLTRANSFERASE (PROTEIN-BETA-ASPARTATE METHYLTRANSFERASE) (PMT) (PROTEIN L-ISOASPARTYL METHYLTRANSFERASE)   |
| 2964                   | 18475                 |                   | 8.47                 | 3.6E-01                                       | AF190488.1               | NT                            | ISOASPARTYL PROTEIN CARBOXYL METHYLTRANSFERASE  |
| 3558                   | 16723                 | 29738             | 1.98                 | 3.6E-01                                       | X76758.1                 | NT                            | Drosophila melanogaster sugar transporter 3 (sug3) mRNA, complete cds   |
| 3558                   | 16723                 | 29739             | 1.98                 | 3.6E-01                                       | X76758.1                 | NT                            | H. sapiens serotonin transporter gene, exons 9 and 10   |
| 4528                   | 17668                 | 30652             | 1.2                  | 3.6E-01                                       | BE707883.1               | EST_HUMAN                     | H. sapiens serotonin transporter gene, exons 9 and 10   |
| 4953                   | 17998                 | 30981             | 0.69                 | 3.6E-01                                       | AJ009509.1               | NT                            | RC1-HT0545-150800-014-b12 HT0545 Homo sapiens cDNA  |
| 5123                   | 18249                 | 31215             | 3.19                 | 3.6E-01                                       | AW339398.1               | EST_HUMAN                     | Brassica napus mRNA for MAPK alpha2 protein   |
| 5209                   | 18330                 | 31302             | 0.92                 | 3.6E-01                                       | BE067688.1               | EST_HUMAN                     | h02g04.x1 NCI_LGAP_L124 Homo sapiens cDNA clone IMAGE:2872566 3'  |
| 5498                   | 18697                 | 31713             | 0.84                 | 3.6E-01                                       | AJ006565.1               | NT                            | MR4-BT0358-270300-005-c10 BT0358 Homo sapiens cDNA  |
| 6211                   | 18388                 | 32735             | 0.96                 | 3.6E-01                                       | P16431                   | SWISSPROT                     | Homo sapiens lps gene intron 5  |
| 6807                   | 19767                 | 33155             | 1.63                 | 3.6E-01                                       | Y10196.1                 | NT                            | FORMATE HYDROGENLYASE SUBUNIT 5 PRECURSOR (FHL SUBUNIT 5) (HYDROGENASE-3 COMPONENT E)   |
| 7298                   | 20360                 |                   | 3.85                 | 3.6E-01                                       | R94090.1                 | EST_HUMAN                     | Homo sapiens PHEX gene  |
| 7435                   | 20512                 | 33085             | 1.52                 | 3.6E-01                                       | AW027174.1               | EST_HUMAN                     | y74a08.r1 Soares fetal liver spleen 1NfLS Homo sapiens cDNA clone IMAGE:276987 5'   |
| 8419                   | 21500                 | 35032             | 0.76                 | 3.6E-01                                       | P98167                   | SWISSPROT                     | w72c10.x1 Soares thymus_NHfTh Homo sapiens cDNA clone IMAGE:2813010 3' similar to TR-O15117   |
| 8474                   | 21555                 | 35087             | 16.45                | 3.6E-01                                       | AL161583.2               | NT                            | O15117 FYN BINDING PROTEIN, [1]:  |
|                        |                       |                   |                      |   |                          |                               | SCO-SPONDIN   |
|                        |                       |                   |                      |   |                          |                               | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 79   |
| 9179                   | 22267                 | 35789             | 0.48                 | 3.6E-01                                       | U91328.1                 | NT                            | Human hereditary haemochromatosis region, histone 2A-like protein gene, hereditary haemochromatosis (HLA-H) gene, RoRet gene, and sodium phosphate transporter (NP173) gene, complete cds |
| 9179                   | 22267                 | 35800             | 0.48                 | 3.6E-01                                       | U91328.1                 | NT                            | Human hereditary haemochromatosis region, histone 2A-like protein gene, hereditary haemochromatosis (HLA-H) gene, RoRet gene, and sodium phosphate transporter (NP173) gene, complete cds |
| 9203                   | 22281                 | 35820             | 3.04                 | 3.6E-01                                       | 4504956                  | NT                            | Homo sapiens lysosomal-associated membrane protein 2 (LAMP2), transcript variant LAMP2A, mRNA   |
| 9203                   | 22281                 | 35821             | 3.04                 | 3.6E-01                                       | 4504956                  | NT                            | Homo sapiens lysosomal-associated membrane protein 2 (LAMP2), transcript variant LAMP2A, mRNA   |

Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 9393                   | 22468                 | 38032             | 1.23                 | 3.6E-01                                       | AL163204.2               | NT                            | Homo sapiens chromosome 21 segment HS21C004  |
| 9699                   | 22654                 | 38225             | 1.13                 | 3.6E-01                                       | X17650.1                 | NT                            | D. melanogaster singed gene, exons 3, 4, 5 & 6   |
| 9699                   | 22654                 | 38226             | 1.13                 | 3.6E-01                                       | X17650.1                 | NT                            | D. melanogaster singed gene, exons 3, 4, 5 & 6   |
| 9699                   | 22631                 |                   | 0.58                 | 3.6E-01                                       | X02823.1                 | NT                            | C. parvigena p10 gene for phospholipase C upstream region containing bent DNA fragment                                     |
| 10067                  | 23105                 | 35708             | 18.64                | 3.6E-01                                       | Q53194                   | SWISSPROT                     | PROBABLE PEPTIDE ABC TRANSPORTER ATP-BINDING PROTEIN Y4TS  |
| 11187                  | 24258                 | 37891             | 2.42                 | 3.6E-01                                       | BE902390.1               | EST_HUMAN                     | 601678418F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3958997 5'  |
| 11370                  | 24431                 | 38088             | 3.27                 | 3.6E-01                                       | AB004283.1               | NT                            | Arabidopsis thaliana mRNA for SigB, complete cds   |
| 11729                  | 23915                 | 37640             | 4.44                 | 3.6E-01                                       | AE000858.1               | NT                            | Methanobacterium thermoautotrophicum from bases 702375 to 714311 (section 62 of 148) of the complete genome                |
| 12173                  | 28205                 |                   | 3.16                 | 3.6E-01                                       | Y19210.1                 | NT                            | Homo sapiens H1b5 gene for hair keratin, exons 1 to 9  |
| 12261                  | 25197                 |                   | 7.87                 | 3.6E-01                                       | AE000335.1               | NT                            | Escherichia coli K-12 MG1655 section 225 of 400 of the complete genome   |
| 12420                  | 25297                 |                   | 3.63                 | 3.6E-01                                       | U66888.1                 | NT                            | Mus musculus Enr1 mRNA, complete cds   |
| 12528                  | 25532                 |                   | 1.98                 | 3.6E-01                                       | 11432598                 | NT                            | Homo sapiens myeloid/lymphoid or mixed-lineage leukemia (trithorax (Drosophila) homolog), translocated to, 10 (AF10), mRNA |
| 13130                  | 26141                 |                   | 1.4                  | 3.6E-01                                       | AW190229.1               | EST_HUMAN                     | X60911.X1 NCI_CGAP_Pan1 Homo sapiens cDNA clone IMAGE:2678116 3' similar to gb:K00568 TUBULIN ALPHA-1 CHAIN (HUMAN);       |
| 13148                  | 25745                 |                   | 1.38                 | 3.6E-01                                       | Z54173.1                 | NT                            | Pyrococcus sp. pol gene  |
| 214                    | 13437                 | 26467             | 3.71                 | 3.5E-01                                       | 6678933                  | NT                            | Mus musculus mannose receptor, C type 2 (Mrc2), mRNA   |
| 695                    | 13878                 | 26911             | 1.03                 | 3.5E-01                                       | AL161581.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 77  |
| 743                    | 13924                 | 26965             | 1.53                 | 3.5E-01                                       | 7709136                  | NT                            | Homo sapiens GAP-like protein (LOC51306), mRNA   |
| 743                    | 13924                 | 26966             | 1.53                 | 3.5E-01                                       | 7709136                  | NT                            | Homo sapiens GAP-like protein (LOC51306), mRNA   |
| 801                    | 13991                 | 27033             | 4.88                 | 3.5E-01                                       | BF129796.1               | EST_HUMAN                     | 601811060R1 NIH_MGC_48 Homo sapiens cDNA clone IMAGE:4053951 3'  |
| 1870                   | 14822                 | 27805             | 1.28                 | 3.5E-01                                       | U35776.1                 | NT                            | Rattus norvegicus ADP-ribosylation factor-directed GTPase activating protein mRNA, complete cds                            |
| 2871                   | 18088                 | 28808             | 1.34                 | 3.5E-01                                       | AA223252.1               | EST_HUMAN                     | zr08a08.s1 Stratagene NT2 neuronal precursor 837230 Homo sapiens cDNA clone IMAGE:850872 3'                                |
| 3795                   | 16956                 |                   | 0.73                 | 3.5E-01                                       | BF214381.1               | EST_HUMAN                     | 601845470F1 NIH_MGC_55 Homo sapiens cDNA clone IMAGE:4076680 5'  |
| 4378                   | 17621                 | 30501             | 2.62                 | 3.5E-01                                       | AF071253.1               | NT                            | Danio rerio homeobox protein (hoxb5b) gene, complete cds   |
| 5048                   | 18176                 | 31163             | 4.34                 | 3.5E-01                                       | M18949.1                 | NT                            | Rat leukocyte common antigen (L-Ca) gene, exons 1 through 5  |
| 5323                   | 13349                 | 26376             | 0.6                  | 3.5E-01                                       | AL161636.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 36  |
| 5449                   | 18949                 | 31627             | 1.1                  | 3.5E-01                                       | Q96987                   | SWISSPROT                     | EARLY E2A DNA-BINDING PROTEIN  |
| 5449                   | 18949                 | 31628             | 1.1                  | 3.5E-01                                       | Q96987                   | SWISSPROT                     | EARLY E2A DNA-BINDING PROTEIN  |
| 5667                   | 18961                 | 32146             | 1.29                 | 3.5E-01                                       | D42046.1                 | NT                            | Human mRNA for KIAA0086 gene, complete cds   |
| 6367                   | 19537                 |                   | 1                    | 3.6E-01                                       | AW863916.1               | EST_HUMAN                     | PM4-SN0012-030400-001-at11 SN0012 Homo sapiens cDNA  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 6538                   | 19701                 | 33074             | 0.79                 | 3.5E-01                                       | AA431833.1               | EST_HUMAN                     | zw7903.r1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:782429 5' similar to TRG1068635   |
| 6580                   | 19742                 | 33124             | 0.69                 | 3.5E-01                                       | U37150.1                 | NT                            | G1068035 F10F2.1;   |
| 6803                   | 19858                 | 33358             | 0.9                  | 3.5E-01                                       | O24357                   | SWISSPROT                     | Boe taurus peptide methionine sulfoxide reductase (msrA) mRNA, complete cds   |
| 7201                   | 20066                 |                   | 3.38                 | 3.5E-01                                       | X08505.1                 | NT                            | GLUCOSE-6-PHOSPHATE 1-DEHYDROGENASE, CHLOROPLAST PRECURSOR (G6PD)   |
| 7713                   | 20778                 | 34284             | 0.59                 | 3.5E-01                                       | P47281                   | SWISSPROT                     | S. scrofa mRNA for CD31 protein (PECAM-1)   |
| 7713                   | 20778                 | 34285             | 0.59                 | 3.5E-01                                       | P47281                   | SWISSPROT                     | HISTIDYL-TRNA SYNTHETASE (HISTIDINE-TRNA LIGASE) (HISRS)  |
| 8262                   | 21344                 |                   | 2.12                 | 3.5E-01                                       | 11448042                 | NT                            | HISTIDYL-TRNA SYNTHETASE (HISTIDINE-TRNA LIGASE) (HISRS)  |
| 8265                   | 21347                 | 34882             | 0.82                 | 3.5E-01                                       | BF368871.1               | EST_HUMAN                     | Homo sapiens tumor protein p53-binding protein, 2 (TP53BP2), mRNA   |
| 8662                   | 21742                 |                   | 0.77                 | 3.5E-01                                       | AF051591.1               | NT                            | RC4-ET0024-280600-014-d07 E70024 Homo sapiens cDNA  |
| 9127                   | 22206                 | 35740             | 1.17                 | 3.5E-01                                       | 4507610                  | NT                            | Rattus norvegicus Na-K-Cl cotransporter (Nkcc1) mRNA, complete cds  |
| 9837                   | 22976                 | 36557             | 1.75                 | 3.5E-01                                       | Q02294                   | SWISSPROT                     | Homo sapiens tyrosine kinase non-receptor 1 (TNK1), mRNA  |
| 10090                  | 23128                 | 36731             | 4.78                 | 3.5E-01                                       | Z28825.1                 | NT                            | VOLTAGE-DEPENDENT N-TYPE CALCIUM CHANNEL ALPHA-1B SUBUNIT (CALCIUM CHANNEL, L   |
| 10172                  | 23209                 | 36802             | 1.12                 | 3.5E-01                                       | BE174794.1               | EST_HUMAN                     | TYPE, ALPHA-1 POLYPEPTIDE ISOFORM 5) (BRAIN CALCIUM CHANNEL III) (BIII)   |
| 10972                  | 24052                 | 37685             | 2.62                 | 3.5E-01                                       | X61084.1                 | NT                            | X. laevis gene for albumin including HP1 enhancer   |
| 11274                  | 24342                 | 37981             | 1.97                 | 3.5E-01                                       | AJ243178.1               | NT                            | QV2-HT0577-090400-128-c07 HT0577 Homo sapiens cDNA  |
| 11274                  | 24342                 | 37982             | 1.97                 | 3.5E-01                                       | AJ243178.1               | NT                            | C. griseus rhodopsin gene for opsin protein   |
| 11810                  | 24800                 | 38469             | 1.33                 | 3.5E-01                                       | U07000.1                 | NT                            | Gallus gallus SPARC gene for osteonectin, promoter and exon 1   |
| 11862                  | 24890                 | 38577             | 1.44                 | 3.5E-01                                       | N77597.1                 | EST_HUMAN                     | Gallus gallus SPARC gene for osteonectin, promoter and exon 1   |
| 11980                  | 24995                 | 38687             | 1.53                 | 3.5E-01                                       | L05145.1                 | NT                            | Human breakpoint cluster region (BCR) gene, complete cds  |
| 12271                  | 26209                 |                   | 1.51                 | 3.5E-01                                       | AF297498.1               | NT                            | yz29J112.r1 Soares_multiple_sclerosis_ZN4-IMPSP Homo sapiens cDNA clone IMAGE:280375 5'   |
| 12344                  | 26249                 |                   | 6.69                 | 3.5E-01                                       | X94565.1                 | NT                            | Human glucokinase (GCK) gene, repeat polymorphism   |
| 12507                  | 26348                 |                   | 2.91                 | 3.5E-01                                       | AE001774.1               | NT                            | Schistosoma mansoni strain NMRI chromatin assembly factor 1 small subunit-like protein (SBAP48) mRNA, complete cds                            |
| 12710                  | 26472                 |                   | 1.5                  | 3.5E-01                                       | AE001691.1               | NT                            | B. taurus alpha1 gene for F(OF)(1) ATP synthase alpha-subunit   |
| 13168                  | 26026                 | 31673             | 3.16                 | 3.5E-01                                       | H08014.1                 | EST_HUMAN                     | Thermoboga maritima section 88 of 136 of the complete genome  |
| 13168                  | 26026                 | 31674             | 3.16                 | 3.5E-01                                       | H08014.1                 | EST_HUMAN                     | Thermoboga maritima section 3 of 136 of the complete genome   |
| 725                    | 13907                 |                   | 1.78                 | 3.4E-01                                       | AJ242959.1               | NT                            | ys94f11.r1 Soares retina N2b4-R Homo sapiens cDNA clone IMAGE:219597 5'   |
| 998                    | 14169                 | 27230             | 8.2                  | 3.4E-01                                       | Y09788.2                 | NT                            | ys94f11.r1 Soares retina N2b4-R Homo sapiens cDNA clone IMAGE:219597 5'   |
| 1000                   | 14171                 | 27232             | 2.08                 | 3.4E-01                                       | AW380120.1               | EST_HUMAN                     | Homo sapiens partial N-myc (exon 3), HPV45 L2, HPV45 L1, HPV45 E6, HPV45 E7 and HPV45 E1 genes isolated from IC4 cervical carcinoma cell line |
| 1357                   | 14512                 | 27895             | 2.95                 | 3.4E-01                                       | Y00554.1                 | NT                            | Pseudomonas fluorescens cdiR, cdiS genes, orf222 and partial inaA gene  |
| 2474                   | 15601                 | 28728             | 2.54                 | 3.4E-01                                       | D90909.1                 | NT                            | QV3-HT0261-241189-019-g10 HT0261 Homo sapiens cDNA  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 3065                   | 18241                 | 29261             | 0.87                 | 3.4E-01                                       | AL163210.2               | NT                            | Homo sapiens chromosome 21 segment HS21C010   |
| 3065                   | 18241                 | 29262             | 0.87                 | 3.4E-01                                       | AL163210.2               | NT                            | Homo sapiens chromosome 21 segment HS21C010   |
| 3218                   | 18302                 | 29403             | 1.09                 | 3.4E-01                                       | D90809.1                 | NT                            | Synechotystis sp. PCC6803 complete genome, 11/27, 1311235-1430418   |
| 3230                   | 16404                 | 29416             | 6.1                  | 3.4E-01                                       | U83905.1                 | NT                            | Canis familiaris rod photoreceptor cGMP-gated channel alpha-subunit (CNIGC1) mRNA, complete cds                 |
| 3424                   | 18593                 | 29808             | 0.78                 | 3.4E-01                                       | AF034802.1               | NT                            | Homo sapiens pulmonary surfactant protein D, promoter region and exon 1   |
| 3620                   | 16784                 | 29800             | 4.47                 | 3.4E-01                                       | AF106835.1               | NT                            | Methylobacterium sp. strain SS1 putative GrpE (grpE), DnaK (dnaK), and putative DnaJ (dnaJ) genes, complete cds |
| 3890                   | 17049                 |                   | 1.89                 | 3.4E-01                                       | BF448010.1               | EST_HUMAN                     | 7n94601.x1 NCI_CGAP_Ov18 Homo sapiens cDNA clone IMAGE:3572232 3' similar to TR:Q8UJ15                          |
| 4163                   | 17313                 |                   | 1.48                 | 3.4E-01                                       | AA584198.1               | EST_HUMAN                     | Q8UJ15.DJ18C3.1   |
| 4767                   | 17802                 | 30884             | 1.78                 | 3.4E-01                                       | BE068912.1               | EST_HUMAN                     | nc11b10.s1 NCI_CGAP_Phe1 Homo sapiens cDNA clone IMAGE:1100347 3'   |
| 5066                   | 18194                 |                   | 4.3                  | 3.4E-01                                       | A1240973.1               | EST_HUMAN                     | MF4-BT0403-230200-262-c01 BT0403 Homo sapiens cDNA  |
| 5802                   | 18892                 | 32285             | 2.64                 | 3.4E-01                                       | AL161694.2               | NT                            | q95c05.x1 NCI_CGAP_Kid3 Homo sapiens cDNA clone IMAGE:1867208 3' similar to contains Alu repetitive element     |
| 5932                   | 19118                 |                   | 4.92                 | 3.4E-01                                       | AA085313.1               | EST_HUMAN                     | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 90   |
| 6130                   | 19309                 |                   | 2.17                 | 3.4E-01                                       | L02871.1                 | NT                            | zn12d11.s1 Stragene hNT neuron (#637293) Homo sapiens cDNA clone IMAGE:547221 3'                                |
| 6154                   | 19330                 | 32676             | 0.98                 | 3.4E-01                                       | BE748912.1               | EST_HUMAN                     | Echovirus 22 1AB, 1C, 1D, 2A, 2B, 2C, 3A, 3B, 3C, 3D proteins RNA, complete mature peptides and cds             |
| 6234                   | 19409                 | 32757             | 1.8                  | 3.4E-01                                       | AW204503.1               | EST_HUMAN                     | 601671811T1 NIH_MGC_55 Homo sapiens cDNA clone IMAGE:3838826 3'   |
| 6364                   | 19634                 | 32883             | 1.71                 | 3.4E-01                                       | AL120544.1               | EST_HUMAN                     | UH-BH-est-e-12-0-JL.s1 NCI_CGAP_Sub3 Homo sapiens cDNA clone IMAGE:2718582 3'                                   |
| 6882                   | 20034                 |                   | 1.39                 | 3.4E-01                                       | N95225.1                 | EST_HUMAN                     | DKFZp761A249.J1 701 (synonym: hamy2) Homo sapiens cDNA clone DKFZp761A249 5'                                    |
| 7088                   | 20180                 | 33604             | 1.07                 | 3.4E-01                                       | AA68082.1                | EST_HUMAN                     | zb53er12.s1 Soares_fetal_lung_NHL19W Homo sapiens cDNA clone IMAGE:307342 3'                                    |
| 7205                   | 20070                 | 33480             | 0.6                  | 3.4E-01                                       | BF678702.1               | EST_HUMAN                     | tm83g06.x1 NCI_CGAP_Bm26 Homo sapiens cDNA clone IMAGE:2162840 3' similar to gb:S37431                          |
| 8090                   | 21172                 |                   | 0.48                 | 3.4E-01                                       | AE000483.1               | NT                            | LAMININ RECEPTOR (HUMAN);   |
| 8432                   | 21513                 | 35044             | 0.68                 | 3.4E-01                                       | Y14930.1                 | NT                            | 602085283F1 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:4249385 5'   |
| 8684                   | 21764                 |                   | 1.38                 | 3.4E-01                                       | AA337063.1               | EST_HUMAN                     | Escherichia coli K-12 MG1683 section 383 of 400 of the complete genome  |
| 8760                   | 21839                 | 35380             | 0.71                 | 3.4E-01                                       | L04690.1                 | NT                            | Homo sapiens TCRAV28 gene, allele A4, partial   |
| 9053                   | 22132                 | 35576             | 1.87                 | 3.4E-01                                       | P26013                   | SWISSPROT                     | EST41765 Endometrial tumor Homo sapiens cDNA 5' end   |
| 9413                   | 22487                 | 36051             | 4.12                 | 3.4E-01                                       | P26013                   | SWISSPROT                     | Orbitolus griseus cholesterol 7-alpha-hydroxylase gene, complete cds  |
| 9413                   | 22487                 | 36052             | 4.12                 | 3.4E-01                                       | P26013                   | SWISSPROT                     | Bovine enterovirus strain K257, complete genome   |
| 9621                   | 22676                 |                   | 0.57                 | 3.4E-01                                       | AB017510.1               | NT                            | INTEGRIN BETA-8 PRECURSOR   |
| 9645                   | 21088                 | 34602             | 4.68                 | 3.4E-01                                       | U19492.1                 | NT                            | INTEGRIN BETA-8 PRECURSOR   |
|                        |                       |                   |                      |   |                          |                               | Ephedra fluviatilis mRNA for PLC-gammaS, complete cds   |
|                        |                       |                   |                      |   |                          |                               | Saccharomyces cerevisiae Maf1p (MAF1) gene, complete cds  |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO. | Exon<br>SEQ ID<br>NO. | ORF SEQ<br>ID NO. | Expression<br>Signal | Most Similar<br>(Top) Hit<br>-BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|--|--------------------------|-------------------------------|--|
| 9645                   | 21088                 | 34603             | 4.68                 | 3.4E-01  | U19492.1                 | NT                            | Saccharomyces cerevisiae Maf1p (MAF1) gene, complete cds   |
| 9697                   | 22837                 | 36522             | 0.86                 | 3.4E-01  | U68768.1                 | NT                            | Glycine max putative transcription factor SCOF-1 (scot-1) mRNA, complete cds   |
| 10083                  | 23131                 | 36735             | 2.44                 | 3.4E-01  | AJ225084.1               | NT                            | Homo sapiens FAA gene, exon 16, 17 and 18  |
| 10695                  | 23728                 |                   | 0.73                 | 3.4E-01  | AE004096.1               | NT                            | Vibrio cholerae chromosome I, section 4 of 251 of the complete chromosome  |
| 11267                  | 24336                 |                   | 3.26                 | 3.4E-01  | AE000881.1               | NT                            | Methanobacterium thermoautotrophicum from bases 1018444 to 1028212 (section 87 of 148) of the complete genome  |
| 11307                  | 24372                 | 38014             | 2.1                  | 3.4E-01  | P06925                   | SWISSPROT                     | PROBABLE E4 PROTEIN  |
| 11350                  | 24412                 | 38066             | 1.86                 | 3.4E-01  | AF045981.1               | NT                            | Ruflus arcasii cytochrome b (cytb) gene, mitochondrial gene encoding mitochondrial protein, partial cds  |
| 11561                  | 24616                 | 38295             | 1.91                 | 3.4E-01  | M25896.1                 | NT                            | Human von Willebrand factor gene, exons 36 and 37  |
| 11581                  | 24616                 | 38296             | 1.91                 | 3.4E-01  | M25896.1                 | NT                            | Human von Willebrand factor gene, exons 36 and 37  |
| 11791                  | 24781                 | 38476             | 1.68                 | 3.4E-01  | AB035507.1               | NT                            | Rattus norvegicus mRNA for s-globin/MUC18, complete cds  |
| 11817                  | 24806                 | 38502             | 3.23                 | 3.4E-01  | AL161515.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 27  |
| 12078                  | 25058                 | 38765             | 1.59                 | 3.4E-01  | BF061848.1               | EST_HUMAN                     | 768412.x1 NCI CGAP GC8 Homo sapiens cDNA clone IMAGE:3480846 3'  |
| 12110                  | 25090                 | 38793             | 1.65                 | 3.4E-01  | Q27546                   | SWISSPROT                     | INOSINE-URIDINE PREFERRING NUCLEOSIDE HYDROLASE (U-NUCLEOSIDE HYDROLASE)   |
| 12150                  | 25120                 |                   | 2.03                 | 3.4E-01  | U83604.1                 | NT                            | (PURINE NUCLEOSIDASE)  |
| 12264                  | 26198                 |                   | 1.55                 | 3.4E-01  | Z21621.1                 | NT                            | Citrus variegation virus putative replicase gene, partial cds  |
| 12367                  | 25912                 |                   | 1.16                 | 3.4E-01  | AF254351.1               | NT                            | Saccharomyces RIB5 gene encoding Riboflavin synthase   |
| 12489                  | 25338                 |                   | 10.71                | 3.4E-01  | L26339.1                 | NT                            | Schizosaccharomyces pombe Cwifp (cwif) gene, complete cds  |
| 12517                  | 25944                 |                   | 2.98                 | 3.4E-01  | BE218652.1               | EST_HUMAN                     | Human autoantigen mRNA, complete cds   |
| 12579                  | 26052                 |                   | 1.79                 | 3.4E-01  | 8836361                  | NT                            | h42208.x1 NCI CGAP Lu24 Homo sapiens cDNA clone IMAGE:3176127 3' similar to contains PTR5.13   |
| 12700                  | 25466                 | 32023             | 1.36                 | 3.4E-01  | AJ297131.1               | NT                            | PTR5 repetitive element  |
| 12954                  | 25160                 |                   | 1.98                 | 3.4E-01  | AJ288948.1               | NT                            | Beta vulgaris mitochondrion, complete genome   |
| 19055                  | 25691                 |                   | 2.26                 | 3.4E-01  | AF010413.1               | NT                            | Mus musculus SIL, MAP_17, CYP_a, SCL & CYP_b genes   |
| 15                     | 13253                 | 26253             | 6.72                 | 3.3E-01  | X07690.1                 | NT                            | Caenorhabditis cellulosum partial spoIVB gene and spoIVB gene, strain ATCC 35319   |
| 108                    | 13253                 | 26253             | 3.19                 | 3.3E-01  | X07690.1                 | NT                            | Homo sapiens HLA class III region containing tenascin X (tenascin-X) gene, partial cds; cytochrome P450 21-hydroxylase (CYP21B), complement component C4 (C4B) G11, helicase (SK2W), RD, complement factor B (Bf), and complement component C2 (C2) genes, > |
| 461                    | 13656                 | 26694             | 1.41                 | 3.3E-01  | AL161545.2               | NT                            | Rhizobium leguminosarum sym plasmid pRL5J nodX gene  |
| 650                    | 13636                 | 26863             | 1.97                 | 3.3E-01  | 7682485                  | NT                            | Rhizobium leguminosarum sym plasmid pRL5J nodX gene  |
| 1227                   | 14387                 | 27450             | 2.57                 | 3.3E-01  | Q12446                   | SWISSPROT                     | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 45  |
| 1335                   | 14492                 | 27562             | 3.39                 | 3.3E-01  | BF566860.1               | EST_HUMAN                     | Homo sapiens KIAA1100 protein (KIAA1100), mRNA   |
|                        |                       |                   |                      |  |                          |                               | PROLINE-RICH PROTEIN LAS17   |
|                        |                       |                   |                      |  |                          |                               | 802184016T1 NIH_MGC_42 Homo sapiens cDNA clone IMAGE:430251 3'   |

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Description  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 1636                   | 14788                 | 27873             | 1.26                 | 3.3E-01                                       | 6753685                  | NT                            | Mus musculus disintegrin 5 (Dign5), mRNA   |
| 1674                   | 14828                 |                   | 1.43                 | 3.3E-01                                       | 6754477                  | NT                            | Mus musculus kappa B and Rss recognition component (Krc), mRNA   |
| 1777                   | 14926                 |                   | 1.02                 | 3.3E-01                                       | AA332734.1               | EST_HUMAN                     | EST789722 Embryo, 8 week Homo sapiens cDNA 5' end  |
| 2477                   | 15504                 |                   | 6.23                 | 3.3E-01                                       | 4507834                  | NT                            | Homo sapiens uridine monophosphate synthetase (arolate phosphoribosyl transferase and oradidine-5'-decarboxylase) (UMPS) mRNA                          |
| 3014                   | 16180                 | 28215             | 1.61                 | 3.3E-01                                       | AJ251805.1               | NT                            | Bacteriophage phi-Yeo3-12 complete genome  |
| 3080                   | 16256                 |                   | 1.09                 | 3.3E-01                                       | O02743                   | SWISSPROT                     | INTERLEUKIN-12 ALPHA CHAIN PRECURSOR (IL-12A) (CYTOTOXIC LYMPHOCYTE MATURATION FACTOR 35 KD SUBUNIT) (CLMF P35)  |
| 3121                   | 16297                 | 28311             | 0.78                 | 3.3E-01                                       | AJ007832.2               | NT                            | Streptomyces argillaceus mithramycin biosynthetic genes  |
| 3584                   | 16749                 | 29766             | 1.04                 | 3.3E-01                                       | AB012822.1               | NT                            | Homo sapiens MTA1-L1 gene, complete cds  |
| 3911                   | 17070                 | 30068             | 2.72                 | 3.3E-01                                       | 084645                   | SWISSPROT                     | EXODEOXYRIBONUCLEASE V BETA CHAIN  |
| 3921                   | 17080                 | 30076             | 0.82                 | 3.3E-01                                       | P22602                   | SWISSPROT                     | GENOME POLYPROTEIN [CONTAINS: N-TERMINAL PROTEIN (P1); HELPER COMPONENT PROTEINASE (HC-PRO); PROTEIN P3]   |
| 4072                   | 17228                 | 30235             | 1.19                 | 3.3E-01                                       | AL161486.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, centig fragment No. 10  |
| 4108                   | 17262                 | 30262             | 1.81                 | 3.3E-01                                       | AF200446.1               | NT                            | Hypoxylon fragiforme chitin synthase gene, partial cds   |
| 4487                   | 17627                 |                   | 2.37                 | 3.3E-01                                       | D31662.1                 | NT                            | Rattus norvegicus DNA for regucalcin, partial cds  |
| 4812                   | 17945                 |                   | 1.91                 | 3.3E-01                                       | AI539114.1               | EST_HUMAN                     | tp78b12.x1 NCI_CGAP_U31 Homo sapiens cDNA clone IMAGE:2205407 3' similar to gb:X57522 ANTIGEN PEPTIDE TRANSPORTER 1 (HUMAN);                           |
| 4943                   | 17976                 | 30968             | 1.02                 | 3.3E-01                                       | M24461.1                 | NT                            | Human pulmonary surfactant-associated protein SP-B (SFTP3) mRNA, complete cds  |
| 4980                   | 18089                 | 31085             | 1.14                 | 3.3E-01                                       | D64003.1                 | NT                            | Synechocystis sp. PCC6803 complete genome, 22/27, 2755703-2868766  |
| 5439                   | 18639                 | 31617             | 2.55                 | 3.3E-01                                       | X88819.1                 | NT                            | R.norvegicus mRNA for 3'UTR of ubiquitin-like protein  |
| 5439                   | 18639                 | 31618             | 2.55                 | 3.3E-01                                       | X88819.1                 | NT                            | R.norvegicus mRNA for 3'UTR of ubiquitin-like protein  |
| 5807                   | 18096                 | 32411             | 0.68                 | 3.3E-01                                       | BF213873.1               | EST_HUMAN                     | 601848090F1 NIH_MGC 55 Homo sapiens cDNA clone IMAGE:4078823 5'  |
| 6067                   | 19249                 | 32576             | 1.37                 | 3.3E-01                                       | BE619050.1               | EST_HUMAN                     | 601472768T1 NIH_MGC 68 Homo sapiens cDNA clone IMAGE:3876753 3'  |
| 6067                   | 19249                 | 32577             | 1.37                 | 3.3E-01                                       | BE619050.1               | EST_HUMAN                     | 601472768T1 NIH_MGC 68 Homo sapiens cDNA clone IMAGE:3876753 3'  |
| 6162                   | 18338                 | 32884             | 1.29                 | 3.3E-01                                       | P05691                   | SWISSPROT                     | CIRCUMSPOROZOITE PROTEIN (CS)  |
| 6932                   | 20247                 | 33680             | 0.59                 | 3.3E-01                                       | AB034233.1               | NT                            | Flexibacter litoralis gyrB gene for DNA gyrase B subunit, partial cds  |
| 6932                   | 20247                 | 33681             | 0.59                 | 3.3E-01                                       | AB034233.1               | NT                            | Flexibacter litoralis gyrB gene for DNA gyrase B subunit, partial cds  |
| 7028                   | 20165                 | 33586             | 4.63                 | 3.3E-01                                       | AI628131.1               | EST_HUMAN                     | iy84h01.x1 NCI_CGAP_Kd111 Homo sapiens cDNA clone IMAGE:2285809 3' similar to contains Alu repetitive element; contains element L1 repetitive element; |
| 7028                   | 20165                 | 33587             | 4.63                 | 3.3E-01                                       | AI628131.1               | EST_HUMAN                     | iy84h01.x1 NCI_CGAP_Kd111 Homo sapiens cDNA clone IMAGE:2285809 3' similar to contains Alu repetitive element; contains element L1 repetitive element; |
| 7061                   | 21011                 | 34521             | 1.9                  | 3.3E-01                                       | N85146.1                 | EST_HUMAN                     | J2498F Human fetal heart, Lambda ZAP Express Homo sapiens cDNA clone J2498 5' similar to TEGT  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 8759                   | 21638                 | 35379             | 23.1                 | 3.3E-01                                       | BF683654.1               | EST_HUMAN                     | 602140372F1 NIH_MGC_48 Homo sapiens cDNA clone IMAGE:4301800 5'  |
| 8926                   | 22005                 | 35544             | 0.73                 | 3.3E-01                                       | BF210322.1               | EST_HUMAN                     | 601873281F1 NIH_MGC_54 Homo sapiens cDNA clone IMAGE:4097180 5'  |
| 9314                   | 22360                 | 35941             | 0.83                 | 3.3E-01                                       | Q62925                   | SWISSPROT                     | MITOGEN-ACTIVATED PROTEIN KINASE 1 (MAPK/ERK KINASE 1) (MEK KINASE 1) (MEKK 1)   |
| 9578                   | 22720                 | 36289             | 1.16                 | 3.3E-01                                       | BE828461.1               | EST_HUMAN                     | CM3-ET0041-180500-187-410 ET0041 Homo sapiens cDNA   |
| 9578                   | 22720                 | 36290             | 1.16                 | 3.3E-01                                       | BE828461.1               | EST_HUMAN                     | CM3-ET0041-180500-187-410 ET0041 Homo sapiens cDNA   |
| 9711                   | 22760                 | 36330             | 2.9                  | 3.3E-01                                       | N98866.1                 | EST_HUMAN                     | z667h01.at Soares fetal lung NBHL19W Homo sapiens cDNA clone IMAGE:297849 3'   |
| 9752                   | 22630                 | 36260             | 2.81                 | 3.3E-01                                       | BF378745.1               | EST_HUMAN                     | RC4-TN0077-250800-011-g04 TN0077 Homo sapiens cDNA   |
| 10196                  | 23233                 |                   | 2.08                 | 3.3E-01                                       | L41044.1                 | NT                            | Homo sapiens high-mobility group phosphoprotein (HMG-C) gene, exons 1-3, complete cds  |
| 10866                  | 23667                 | 37520             | 0.74                 | 3.3E-01                                       | AE000631.1               | NT                            | Helicobacter pylori 26695 section 109 of 134 of the complete genome  |
| 10960                  | 24041                 | 37675             | 3.35                 | 3.3E-01                                       | X93983.1                 | NT                            | D.mauritiana Adh gene  |
| 10960                  | 24041                 | 37676             | 3.35                 | 3.3E-01                                       | X93983.1                 | NT                            | D.mauritiana Adh gene  |
| 11279                  | 24345                 |                   | 2.1                  | 3.3E-01                                       | BF820499.1               | EST_HUMAN                     | 602070802F1 NCI_CGAP_Bm64 Homo sapiens cDNA clone IMAGE:42135585 5'  |
| 11507                  | 24595                 | 38242             | 9.35                 | 3.3E-01                                       | BE219351.1               | EST_HUMAN                     | hm51g02.x1 NCI_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3176978 3'  |
|                        |                       |                   |                      |   |                          |                               | GALECTIN-3 (GALACTOSE-SPECIFIC LECTIN 3) (MAC-2 ANTIGEN) (IGE-BINDING PROTEIN) (35 KD LECTIN) (CARBOHYDRATE BINDING PROTEIN 35) (CBP 35) (LAMININ-BINDING PROTEIN) (LECTIN L-29) (CBP30) |
| 11626                  | 24706                 | 38339             | 3.7                  | 3.3E-01                                       | P47953                   | SWISSPROT                     | cb71g02.e1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:1336850 3'  |
| 12018                  | 25002                 |                   | 2.8                  | 3.3E-01                                       | AA806821.1               | EST_HUMAN                     | RH30bium leguminosarum sym plasmid pRL5Jl nodX gene  |
| 12036                  | 13253                 | 28253             | 2.33                 | 3.3E-01                                       | X07890.1                 | NT                            | Homo sapiens aldehyde oxidase 1 (AOX1), mRNA   |
| 12250                  | 25190                 | 38357             | 1.85                 | 3.3E-01                                       | 6956319                  | NT                            | Pyrococcus horikoshii OT3 genomic DNA, 287001-644000 nt, position (277)  |
| 13044                  | 26686                 |                   | 22.03                | 3.3E-01                                       | AP000002.1               | NT                            | Rattus norvegicus EH domain binding protein Epsin mRNA, complete cds   |
| 488                    | 13694                 |                   | 2.5                  | 3.2E-01                                       | AF018281.1               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 61  |
| 736                    | 13918                 |                   | 0.76                 | 3.2E-01                                       | AL161561.2               | NT                            | Fusarium poae virus 1 RNA2 putative RNA dependant RNA polymerase gene, complete cds  |
| 1188                   | 14350                 | 27408             | 23.03                | 3.2E-01                                       | AF047013.1               | NT                            | P. vulgaris arc5-1 gene  |
| 1311                   | 14467                 | 27535             | 1.48                 | 3.2E-01                                       | Z50202.1                 | NT                            | LACTOSE PERMEASE (LACTOSE-PROTON SYMPORT) (LACTOSE TRANSPORT PROTEIN)  |
| 1421                   | 14576                 | 27648             | 6.74                 | 3.2E-01                                       | Q48024                   | SWISSPROT                     | Arabidopsis thaliana cultivar Columbia RPP13 (RPP13) gene, complete cds  |
| 1663                   | 14815                 |                   | 1                    | 3.2E-01                                       | AF009730.1               | NT                            | S.cerevisiae chromosome II reading frame ORF YBR172c   |
| 1815                   | 14964                 | 28057             | 1.3                  | 3.2E-01                                       | Z38041.1                 | NT                            | EST368264 MAGE resequences, MAGD Homo sapiens cDNA   |
| 1825                   | 14974                 | 28069             | 6.42                 | 3.2E-01                                       | AW957194.1               | EST_HUMAN                     | EST368264 MAGE resequences, MAGD Homo sapiens cDNA   |
| 1825                   | 14974                 | 28070             | 6.42                 | 3.2E-01                                       | AW957194.1               | EST_HUMAN                     | Botrytis cinerea strain T4 cDNA library under conditions of nitrogen deprivation   |
| 1891                   | 15035                 | 28142             | 1.25                 | 3.2E-01                                       | AL111655.1               | NT                            | 601868804F1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:4111512 5'  |
| 2227                   | 15361                 | 28490             | 3.22                 | 3.2E-01                                       | BF203817.1               | EST_HUMAN                     | Mus musculus P16knited11 homeobox (P16kn1), mRNA   |
| 2606                   | 15729                 |                   | 2.83                 | 3.2E-01                                       | 7710079                  | NT                            | Homo sapiens promyelocytic leukemia zinc finger protein (PLZF) gene, complete cds  |
| 2774                   | 15889                 | 29000             | 1.23                 | 3.2E-01                                       | AF060568.1               | NT                            |  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 3898                   | 16857                 |                   | 0.76                 | 3.2E-01                                       | D10872.1                 | NT                            | Human h NAT allele 3-2 gene for arylamine N-acetyltransferase  |
| 4081                   | 17217                 |                   | 0.93                 | 3.2E-01                                       | AL161546.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 46  |
| 4514                   | 17653                 | 30641             | 1.37                 | 3.2E-01                                       | M18818.1                 | NT                            | Rabbit beta-like globin gene cluster encoding the epsilon, gamma, delta (pseudogene) and beta globin polypeptides, complete cds  |
| 4821                   | 17758                 | 30740             | 1.35                 | 3.2E-01                                       | Q10288                   | SWISSPROT                     | HYPOTHETICAL 61.7 KD PROTEIN C13G7.04C IN CHROMOSOME 1 PRECURSOR   |
| 4830                   | 17933                 |                   | 0.99                 | 3.2E-01                                       | BF693617.1               | EST_HUMAN                     | 602081972F1 NIH_MGC_81 Homo sapiens cDNA clone IMAGE:4246505 5'  |
| 5398                   | 18598                 | 31560             | 2.93                 | 3.2E-01                                       | BE175964.1               | EST_HUMAN                     | CM0-HT05569-060300-269-f10 HT0569 Homo sapiens cDNA  |
| 6078                   | 18260                 | 32589             | 1.08                 | 3.2E-01                                       | L27221.1                 | NT                            | Giardia intestinalis pyruvate:flavodoxin oxidoreductase and flanking genes   |
| 6433                   | 19601                 | 32965             | 0.79                 | 3.2E-01                                       | AF016494.1               | NT                            | Fugu rubripes gamma-aminobutyric acid receptor beta subunit gene, partial cds; 55kd erythrocyte membrane protein (P55), synaptic vesicle-associated integral membrane protein (VAMP-1), procollagen C-proteinase enhancer protein (PCOLCE) genes, complete c |
| 6729                   | 19895                 | 33277             | 0.95                 | 3.2E-01                                       | AF016494.1               | EST_HUMAN                     | AV718037 FH1A Homo sapiens cDNA clone FH1AABH01 5'   |
| 6872                   | 20024                 |                   | 1.17                 | 3.2E-01                                       | AB002359.1               | NT                            | Human mRNA for KIAA0361 gene, KIAA0361 protein   |
| 8040                   | 21123                 | 34643             | 0.52                 | 3.2E-01                                       | AJ277661.1               | NT                            | Homo sapiens partial LMO1 gene for LIM domain only 1 protein, exon 1   |
| 8365                   | 21446                 | 34969             | 1.5                  | 3.2E-01                                       | M60286.1                 | NT                            | Rat ISO-alpha natriuretic factor gene, complete cds  |
| 8461                   | 21542                 | 35072             | 0.87                 | 3.2E-01                                       | AJ231001.1               | NT                            | Rattus norvegicus repeat map NOS-D12Wcat   |
| 8562                   | 21643                 | 35182             | 15.01                | 3.2E-01                                       | X02508.1                 | NT                            | H. sapiens gene fragment for acetylcholine receptor (AChR) alpha subunit exons 8, 9 and 3' flanking region   |
| 8565                   | 21646                 | 35187             | 14.52                | 3.2E-01                                       | BF311635.1               | EST_HUMAN                     | 601897107F1 NIH_MGC_19 Homo sapiens cDNA clone IMAGE:4126633 5'  |
| 8656                   | 21736                 |                   | 1.24                 | 3.2E-01                                       | AL161574.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 70  |
| 8698                   | 21778                 | 35310             | 0.89                 | 3.2E-01                                       | BF246771.1               | EST_HUMAN                     | 601855590F1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:4075627 5'  |
| 8698                   | 21778                 | 35311             | 0.89                 | 3.2E-01                                       | BF246771.1               | EST_HUMAN                     | 601855590F1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:4075627 5'  |
| 8771                   | 21850                 | 35391             | 1.14                 | 3.2E-01                                       | AE002015.1               | NT                            | Deinococcus radiodurans R1 section 152 of 229 of the complete chromosome 1   |
| 8871                   | 21950                 | 35485             | 0.86                 | 3.2E-01                                       | U51026.1                 | NT                            | Oryctolagus cuniculus Ig H-chain pseudogene, V-region (VH6-a2) gene, partial cds   |
| 8871                   | 21950                 | 35486             | 0.86                 | 3.2E-01                                       | U51026.1                 | NT                            | Oryctolagus cuniculus Ig H-chain pseudogene, V-region (VH6-a2) gene, partial cds   |
| 9267                   | 22344                 | 36895             | 0.87                 | 3.2E-01                                       | AL163204.2               | NT                            | Homo sapiens chromosome 21 segment HS21C004  |
| 9278                   | 22354                 |                   | 2.54                 | 3.2E-01                                       | M88511.1                 | NT                            | Human monocyte antigen CD14 (CD14) mRNA, complete cds  |
| 9351                   | 22426                 | 35983             | 0.61                 | 3.2E-01                                       | AF041829.1               | NT                            | Homo sapiens 6-phosphofructo-2-kinase/fructose-2,6-bisphosphatase (PF2K) gene, exons 12 and 13   |
| 9351                   | 22426                 | 35984             | 0.61                 | 3.2E-01                                       | AF041829.1               | NT                            | Homo sapiens 6-phosphofructo-2-kinase/fructose-2,6-bisphosphatase (PF2K) gene, exons 12 and 13   |
| 10198                  | 23235                 | 36824             | 4.33                 | 3.2E-01                                       | U44914.1                 | NT                            | Borrelia burgdorferi plasmid op32-2, erpC and erpD genes, complete cds; and unknown genes  |
| 10402                  | 23437                 | 37044             | 0.82                 | 3.2E-01                                       | BE328230.1               | EST_HUMAN                     | h93905.x1 NCI_CGAP_L124 Homo sapiens cDNA clone IMAGE:3181569 3'   |
| 10518                  | 23553                 |                   | 3.94                 | 3.2E-01                                       | AB011399.1               | NT                            | Homo sapiens gene for AF-6, complete cds   |

Page 74 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 10905                  | 23988                 | 37620             | 3.05                 | 3.2E-01                                       | TD6813.1                 | EST_HUMAN                     | EST04702 Fetal brain, Stratagene (cat#936206) Homo sapiens cDNA clone HFBDZ21  |
| 12289                  | 26083                 |                   | 3.11                 | 3.2E-01                                       | U07288.1                 | NT                            | Drosophila melanogaster laritinin A (Lam-A) mRNA, complete cds   |
| 12861                  | 25572                 |                   | 3.26                 | 3.2E-01                                       | 083217                   | SWISSPROT                     | ELONGATION FACTOR TU (EF-TU)   |
| 12989                  | 25891                 |                   | 2.2                  | 3.2E-01                                       | AF157625.1               | NT                            | Bos taurus Inositol 1,4,5-trisphosphate receptor type I mRNA, complete cds   |
| 13018                  | 25688                 |                   | 2.07                 | 3.2E-01                                       | U36874.1                 | NT                            | Homo sapiens deoxydylate desaminase gene, complete cds   |
| 13089                  | 26129                 | 31545             | 1.24                 | 3.2E-01                                       | BE388576.1               | EST_HUMAN                     | 601275480F1 NIH_MGC_20 Homo sapiens cDNA clone IMAGE:3618746 5'  |
|                        |                       |                   |                      |   |                          |                               | ye80h08.r1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:125051 5' similar to gb:M64241 QM PROTEIN (HUMAN);  |
| 2738                   | 15853                 | 28987             | 3.39                 | 3.1E-01                                       | R18051.1                 | EST_HUMAN                     | Homo sapiens KIAA0174 gene product (KIAA0174), mRNA  |
| 2782                   | 16001                 | 28985             | 3.77                 | 3.1E-01                                       | 7661871                  | NT                            | Homo sapiens KIAA0174 gene product (KIAA0174), mRNA  |
| 2782                   | 16001                 | 28986             | 3.77                 | 3.1E-01                                       | 7661871                  | NT                            | Homo sapiens KIAA0174 gene product (KIAA0174), mRNA  |
| 2820                   | 16098                 |                   | 1.28                 | 3.1E-01                                       | AW620038.1               | EST_HUMAN                     | hi48h08.x1 Soares NFL_T_GSC_S1 Homo sapiens cDNA clone IMAGE:2876391 3'  |
| 3242                   | 18416                 |                   | 3.61                 | 3.1E-01                                       | AB020069.1               | NT                            | Mus musculus gene for Ser/Thr kinase KKIAMRE, exon 6   |
| 4016                   | 17173                 | 30181             | 0.94                 | 3.1E-01                                       | AJ251586.1               | NT                            | Daucus carota mRNA for transcription factor E2F (E2F gene)   |
| 5077                   | 18205                 | 31177             | 0.7                  | 3.1E-01                                       | AE003984.1               | NT                            | Xylella fastidiosa, section 130 of 229 of the complete genome  |
| 5695                   | 18780                 | 31838             | 9.24                 | 3.1E-01                                       | AF176111.1               | NT                            | Homo sapiens hepatocyte nuclear factor-3 alpha (HNF3A) gene, exon 1  |
| 5717                   | 18910                 | 32205             | 0.7                  | 3.1E-01                                       | P44132                   | SWISSPROT                     | HYPOTHETICAL PROTEIN HI1238  |
| 5718                   | 18911                 | 32206             | 0.76                 | 3.1E-01                                       | Z74883.1                 | NT                            | Saccharomyces chromosome XV reading frame ORF YOL141W  |
| 5729                   | 18922                 |                   | 0.83                 | 3.1E-01                                       | Y13278.1                 | NT                            | Mus musculus mRNA for polycystin   |
| 5892                   | 19080                 | 32360             | 2.85                 | 3.1E-01                                       | AF184122.1               | NT                            | Homo sapiens filamin 2 (FLN2) gene, exons 10 through 22  |
| 6595                   | 19755                 | 33141             | 1.3                  | 3.1E-01                                       | AW963949.1               | EST_HUMAN                     | RC3-HN0001-310300-011-b04 HN0001 Homo sapiens cDNA   |
| 6683                   | 19822                 | 33209             | 0.96                 | 3.1E-01                                       | A1284458.1               | EST_HUMAN                     | q39d01.x1 NCI_CGAP_C68 Homo sapiens cDNA clone IMAGE:1874889 3'  |
| 6821                   | 19974                 | 33382             | 0.79                 | 3.1E-01                                       | X71887.1                 | NT                            | H. sapiens gene for immunoglobulin kappa light chain variable region A8 and A9   |
| 6805                   | 20220                 |                   | 0.89                 | 3.1E-01                                       | AW377354.1               | EST_HUMAN                     | MR2-CT0222-281089-005-H05 CT0222 Homo sapiens cDNA   |
| 7109                   | 25801                 | 31491             | 2.32                 | 3.1E-01                                       | BE737982.1               | EST_HUMAN                     | 601306121F1 NIH_MGC_39 Homo sapiens cDNA clone IMAGE:3640420 5'  |
| 7656                   | 20911                 | 34416             | 0.7                  | 3.1E-01                                       | 4885390                  | NT                            | Homo sapiens hyaluronan synthase 2 (HAS2), mRNA  |
| 8849                   | 21928                 | 35467             | 0.84                 | 3.1E-01                                       | R45318.1                 | EST_HUMAN                     | yg4680.1.e1 Soares infant brain 1N1B Homo sapiens cDNA clone IMAGE:35639 3'  |
| 10108                  | 23144                 | 36742             | 0.88                 | 3.1E-01                                       | 6870322                  | NT                            | Mus musculus phosphatidylinositol-4-phosphate 5-kinase, type 1 gamma (Pip5k1c), mRNA   |
| 10272                  | 23907                 | 36903             | 1.04                 | 3.1E-01                                       | BF69839.1                | EST_HUMAN                     | 602124743F1 NIH_MGC_56 Homo sapiens cDNA clone IMAGE:4281811 5'  |
| 10272                  | 23907                 | 36903             | 1.04                 | 3.1E-01                                       | BF69839.1                | EST_HUMAN                     | 602124743F1 NIH_MGC_56 Homo sapiens cDNA clone IMAGE:4281811 5'  |
| 10272                  | 23907                 | 36904             | 1.04                 | 3.1E-01                                       | BF69839.1                | EST_HUMAN                     | q81e11.x1 NCI_CGAP_K18 Homo sapiens cDNA clone IMAGE:1963980 3' similar to gb:S65700 HYDROXYMETHYLGLUTARYL-COA LYASE PRECURSOR (HUMAN);                                |
| 10334                  | 23989                 | 36979             | 1.88                 | 3.1E-01                                       | AJ244001.1               | EST_HUMAN                     | yo47h08.e1 Stratagene fetal spleen (#937205) Homo sapiens cDNA clone IMAGE:74367 3' similar to similar to gb:M91036_rna2 HEMOGLOBIN GAMMA-A AND GAMMA-G CHAINS (HUMAN) |
| 10510                  | 23545                 |                   | 0.86                 | 3.1E-01                                       | T65325.1                 | EST_HUMAN                     | 601883592F1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:4085814 5'  |
| 11078                  | 24151                 | 37789             | 1.84                 | 3.1E-01                                       | BF216117.1               | EST_HUMAN                     |  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 11474                  | 24533                 | 38203             | 1.62                 | 3.1E-01                                       | AW074910.1               | EST_HUMAN                     | xb83g08.x1 NCI CGAP JHC2 Homo sapiens cDNA clone IMAGE:2571424 3'   |
| 11827                  | 24816                 | 38507             | 2.08                 | 3.1E-01                                       | 7882291                  | NT                            | Homo sapiens KIAA0764 gene product (KIAA0764), mRNA   |
| 11828                  | 24817                 | 38508             | 1.67                 | 3.1E-01                                       | R55735.1                 | EST_HUMAN                     | y89505.r1 Soares infant brain 1NIB Homo sapiens cDNA clone IMAGE:40722 5' similar to contains Alu repetitive element  |
| 12123                  | 25103                 |                   | 1.3                  | 3.1E-01                                       | AF169553.1               | NT                            | Homo sapiens membrane-bound aminopeptidase P (XNPEP2) gene, complete cds  |
| 12418                  | 25288                 |                   | 1.22                 | 3.1E-01                                       | AF284308.1               | NT                            | Anolis opalinus isolectin QS NADH dehydrogenase subunit 2 (ND2) gene, complete cds; mitochondrial gene for mitochondrial product  |
| 12455                  | 25319                 |                   | 1.73                 | 3.1E-01                                       | AF304162.1               | NT                            | Silvestroia vitreum 40S ribosomal protein S11 mRNA, partial cds   |
| 12613                  | 25412                 |                   | 3.73                 | 3.1E-01                                       | AF169553.1               | NT                            | Homo sapiens membrane-bound aminopeptidase P (XNPEP2) gene, complete cds  |
| 13028                  | 26677                 |                   | 3.82                 | 3.1E-01                                       | AF106779.1               | NT                            | Homo sapiens transcription factor 1GIM enhancer 3, JM11 protein, JM4 protein, JM5 protein, T64 protein, JM10 protein, A4 differentiation-dependent protein, triple LIM domain protein 6, and synaptophysin genes, complete cds; and L-type calcium channel $\alpha$ |
| 13068                  | 26123                 |                   | 1.22                 | 3.1E-01                                       | 10948623                 | NT                            | Mus musculus peptidoglycan recognition protein-like (Pglyp)-pending), mRNA  |
| 74                     | 15979                 | 26336             | 1.65                 | 3.0E-01                                       | 6755083                  | NT                            | Mus musculus protein kinase C, epsilon (Pko), mRNA  |
| 264                    | 13483                 | 26515             | 11.52                | 3.0E-01                                       | AJ271735.1               | NT                            | Homo sapiens Xq pseudautosomal region, segment 1/2  |
| 1251                   | 14410                 | 27472             | 2.35                 | 3.0E-01                                       | AW300400.1               | EST_HUMAN                     | xb83f08.x1 NCI CGAP KdH1 Homo sapiens cDNA clone IMAGE:2774343 3'   |
| 1537                   | 14680                 | 27769             | 5.77                 | 3.0E-01                                       | AJ006755.1               | NT                            | Balaenoptera physalus gene encoding atrial natriuretic peptide  |
| 1638                   | 14984                 | 28094             | 1.2                  | 3.0E-01                                       | X99082.1                 | NT                            | A. limnerius putative gene encoding integrase, Mars2 (RP)   |
| 3089                   | 16245                 |                   | 0.8                  | 3.0E-01                                       | AB008877.1               | NT                            | Bos taurus mRNA for UDP-glucuronosyltransferase, complete cds   |
| 3283                   | 16457                 |                   | 1.33                 | 3.0E-01                                       | AB030481.1               | NT                            | Corynebacterium sp. ALY-1 alyPG gene for polyglutamate lyase, complete cds  |
| 3968                   | 17128                 | 30129             | 1.58                 | 3.0E-01                                       | AW817785.1               | EST_HUMAN                     | FM1-ST0262-261189-001-g01 ST0262 Homo sapiens cDNA  |
| 4082                   | 17237                 | 30243             | 1.16                 | 3.0E-01                                       | AJ271736.1               | NT                            | Homo sapiens Xq pseudautosomal region, segment 2/2  |
| 4836                   | 17772                 | 30752             | 1.79                 | 3.0E-01                                       | AJ006755.1               | NT                            | Balaenoptera physalus gene encoding atrial natriuretic peptide  |
| 5258                   | 18949                 | 28695             | 2.33                 | 3.0E-01                                       | P23825                   | SWISSPROT                     | GATA BINDING FACTOR-3 (TRANSCRIPTION FACTOR NIF-ETC) (GATA-3)   |
| 5467                   | 18667                 | 31646             | 6.1                  | 3.0E-01                                       | BE741628.1               | EST_HUMAN                     | 60169490F1 NIH_MGC_9 Homo sapiens cDNA clone IMAGE:3948734 5'   |
| 5548                   | 18746                 | 31780             | 0.64                 | 3.0E-01                                       | AF224698.1               | NT                            | Homo sapiens mannosidase, beta A, lysosomal (MANBA) gene, and ubiquitin-conjugating enzyme E2D 3 (UBE2D3) genes, complete cds   |
| 5552                   | 18749                 | 31785             | 1                    | 3.0E-01                                       | AF228247.1               | NT                            | Canis lupus familiaris hemagglutinin gene, complete cds   |
| 5621                   | 18815                 | 31883             | 4.01                 | 3.0E-01                                       | BE683575.1               | EST_HUMAN                     | RC3-BT0333-180700-111-403 BT0333 Homo sapiens cDNA  |
| 5621                   | 18815                 | 31884             | 4.01                 | 3.0E-01                                       | BE683575.1               | EST_HUMAN                     | RC3-BT0333-180700-111-403 BT0333 Homo sapiens cDNA  |
| 5658                   | 18952                 | 32135             | 3.87                 | 3.0E-01                                       | U01247.1                 | NT                            | Mus musculus 129sv Clara cell 10 kd protein (mCC10) gene, complete cds  |
| 6670                   | 20198                 | 33624             | 2.82                 | 3.0E-01                                       | D16813.1                 | NT                            | Mouse cycloratin 15 gene, complete cds  |
| 6999                   | 18518                 | 31511             | 0.76                 | 3.0E-01                                       | U02269.1                 | NT                            | Strongylocentrotus purpuratus 34167 kDa laminin-binding protein mRNA, partial cds   |
| 7065                   | 20118                 | 33532             | 1.15                 | 3.0E-01                                       | AF228247.1               | NT                            | Canis lupus familiaris hemagglutinin gene, complete cds   |

Page 76 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 7270                   | 20363                 | 33808             | 0.98                 | 3.0E-01                                       | AL163208.2               | NT                            | Homo sapiens chromosome 21 segment HS21C006  |
| 7481                   | 20558                 | 34028             | 4.3                  | 3.0E-01                                       | 10847007                 | NT                            | Mus musculus midkalin (Midn-pending), mRNA   |
| 7670                   | 20736                 | 34214             | 1.31                 | 3.0E-01                                       | AF071810.1               | NT                            | Streptococcus pneumoniae strain DBL5 PapA (papA) gene, partial cds   |
| 8111                   | 21193                 | 34713             | 1.34                 | 3.0E-01                                       | AE001755.1               | NT                            | Thermotoga maritima section 67 of 136 of the complete genome   |
| 8568                   | 21649                 |                   | 3.1                  | 3.0E-01                                       | 6910161                  | NT                            | Mus musculus C-type (calcium dependent, carbohydrate recognition domain) lectin, superfamily member 9 (Clec4ef), mRNA                                  |
| 8658                   | 21738                 | 35279             | 0.48                 | 3.0E-01                                       | Z70200.1                 | NT                            | H. sapiens gene for U5 snRNP-specific 200kD protein  |
| 8871                   | 21751                 | 35288             | 1.23                 | 3.0E-01                                       | BE569083.1               | EST_HUMAN                     | 601339078F1 NIH_MGC_53 Homo sapiens cDNA clone IMAGE:3881884 5'  |
| 9029                   | 22108                 | 35849             | 0.69                 | 3.0E-01                                       | AF141678.1               | NT                            | Streptomyces sulfonolactone isopentadecalin N synthase (pcbC) gene, partial cds  |
| 9072                   | 22151                 |                   | 0.82                 | 3.0E-01                                       | 7881685                  | NT                            | Homo sapiens DKFZP886M0122 protein (DKFZP886M0122), mRNA   |
| 9419                   | 22493                 | 36069             | 1.08                 | 3.0E-01                                       | AF226507.1               | NT                            | Anabaena PCC7120 cytosine-specific DNA methyltransferase (dnmB) gene, complete cds, putative   |
| 9773                   | 22613                 | 36391             | 0.84                 | 3.0E-01                                       | P76389                   | SWISSPROT                     | enfratilate phosphoribosyltransferase gene, partial cds; and unknown gene  |
| 9827                   | 22667                 |                   | 0.46                 | 3.0E-01                                       | D90804.1                 | NT                            | HYPOPHETICAL 59.5 KD PROTEIN IN WZA-ASMA INTERGENIC REGION   |
| 10173                  | 23210                 | 36803             | 0.84                 | 3.0E-01                                       | BF574612.1               | EST_HUMAN                     | Synochocystis sp. PCC6803 complete genome, 827, 630555-781448  |
| 10346                  | 23381                 | 36962             | 0.45                 | 3.0E-01                                       | AF152598.3               | NT                            | 602133271F1 NIH_MGC_81 Homo sapiens cDNA clone IMAGE:4288336 5'  |
| 10348                  | 23381                 | 36963             | 0.45                 | 3.0E-01                                       | AF152598.3               | NT                            | Actinobacillus actinomycetocorritans Tada (tadA), TadB (tadB), TadC (tadC), TadD (tadD), TadE (tadE), TadF (tadF), and TadG (tadG) genes, complete cds |
| 10606                  | 23640                 | 37248             | 0.6                  | 3.0E-01                                       | AW118111.1               | EST_HUMAN                     | Xe03d10.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2806035 3'  |
| 10608                  | 23642                 | 37250             | 2.51                 | 3.0E-01                                       | AB030231.1               | NT                            | Aspergillus cryzae bpaA gene for ER chaperone BIP, complete cds  |
| 10629                  | 23663                 | 37271             | 0.76                 | 3.0E-01                                       | BF883841.1               | EST_HUMAN                     | 602140133F1 NIH_MGC_48 Homo sapiens cDNA clone IMAGE:4301087 5'  |
| 10629                  | 23663                 | 37272             | 0.76                 | 3.0E-01                                       | BF883841.1               | EST_HUMAN                     | 602140133F1 NIH_MGC_48 Homo sapiens cDNA clone IMAGE:4301087 5'  |
| 12067                  | 25048                 | 38765             | 2.16                 | 3.0E-01                                       | H51029.1                 | EST_HUMAN                     | yp84b10.11 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:194107 5'   |
| 12067                  | 25048                 | 38766             | 2.16                 | 3.0E-01                                       | H51029.1                 | EST_HUMAN                     | yp84b10.11 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:194107 5'   |
| 12470                  | 25324                 |                   | 1.3                  | 3.0E-01                                       | PS4680                   | SWISSPROT                     | PONTICULIN PRECURSOR   |
| 12731                  | 26062                 |                   | 1.88                 | 3.0E-01                                       | AJ297631.1               | NT                            | Rattus norvegicus mRNA for glyceraldehyde-3-phosphate dehydrogenase type 2 (gapdh-2 gene)  |
| 13061                  | 26121                 |                   | 4.49                 | 3.0E-01                                       | 6877768                  | NT                            | Mus musculus ribose 5-phosphate isomerase A (Rpia), mRNA   |
| 1771                   | 14920                 |                   | 0.94                 | 2.9E-01                                       | AJ248885.1               | NT                            | Mus musculus mus proto-oncogene and lgr2 gene for insulin-like growth factor type 2 and L41ps and Au76 pseudogenes                                     |
| 1830                   | 15073                 | 28178             | 0.94                 | 2.9E-01                                       | 5174502                  | NT                            | Homo sapiens membrane component, chromosome 11, surface marker 1 (M11S1) mRNA  |
| 2080                   | 16220                 | 28340             | 2.36                 | 2.9E-01                                       | AE000736.1               | NT                            | Aquifex acidus section 68 of 109 of the complete genome  |
| 2322                   | 16454                 | 28585             | 1.01                 | 2.9E-01                                       | AF222718.1               | NT                            | Chrysidium synovialis mitochondrion, complete genome   |
| 3253                   | 16427                 | 29445             | 0.96                 | 2.9E-01                                       | AF078111.1               | NT                            | Xenopus laevis transcription factor E2F mRNA, complete cds   |

Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 3323                   | 18496                 | 28613             | 2.88                 | 2.9E-01                                       | AW754239.1               | EST_HUMAN                     | PM1-CT0328-171288-001-f12 CT0328 Homo sapiens cDNA  |
| 3323                   | 18496                 | 28614             | 2.88                 | 2.9E-01                                       | AW754239.1               | EST_HUMAN                     | PM1-CT0328-171288-001-f12 CT0328 Homo sapiens cDNA  |
| 4003                   | 17160                 | 30160             | 1.12                 | 2.9E-01                                       | AI610836.1               | EST_HUMAN                     | tp21at1.x1 NCI_CGAP_Gas4 Homo sapiens cDNA clone IMAGE:2188412 3' similar to gb:D15050 NIL-2-A<br>ZINC FINGER PROTEIN (HUMAN); contains element L1 repetitive element;  |
| 4045                   | 17201                 | 30212             | 0.61                 | 2.9E-01                                       | AI769472.1               | EST_HUMAN                     | w14d10.x1 NCI_CGAP_Kd12 Homo sapiens cDNA clone IMAGE:2402803 3' similar to WP:CS4F8.7<br>CE15976:  |
| 4183                   | 17333                 | 30326             | 0.61                 | 2.9E-01                                       | AB016426.1               | NT                            | Cavia porcellus mRNA for glutathione S-transferase, complete cds  |
| 4186                   | 17345                 |                   | 0.79                 | 2.9E-01                                       | AW002802.1               | EST_HUMAN                     | w02f10.x1 NCI_CGAP_GC08 Homo sapiens cDNA clone IMAGE:2480396 3'  |
| 4808                   | 17745                 | 30724             | 0.98                 | 2.9E-01                                       | AA284488.1               | EST_HUMAN                     | za57d12.r1 NCI_CGAP_GC081 Homo sapiens cDNA clone IMAGE:701691 5' similar to contains Alu<br>repetitive element;  |
| 4805                   | 17940                 |                   | 0.73                 | 2.9E-01                                       | AL163207.2               | NT                            | Homo sapiens chromosome 21 segment HS21C007   |
| 4957                   | 18087                 | 31083             | 0.59                 | 2.9E-01                                       | AB018026.1               | NT                            | Mus musculus gene, complete cds, similar to EXLM1   |
| 5222                   | 18344                 |                   | 0.99                 | 2.9E-01                                       | AI670898.1               | EST_HUMAN                     | w08003.x1 NCI_CGAP_Kd11 Homo sapiens cDNA clone IMAGE:2297309 3' similar to contains L1.L2 L1<br>repetitive element;  |
| 5320                   | 18087                 | 31063             | 0.65                 | 2.9E-01                                       | AB018026.1               | NT                            | Mus musculus gene, complete cds, similar to EXLM1   |
| 5372                   | 18576                 |                   | 1.59                 | 2.9E-01                                       | R37485.1                 | EST_HUMAN                     | y77ef12.s1 Soares infant brain (NIB Homo sapiens cDNA clone IMAGE:28291 3'  |
| 5511                   | 20137                 | 33555             | 0.98                 | 2.9E-01                                       | AF321001.1               | NT                            | Suaeda maritima subsp. salsa S-adenosylmethionine synthetase 2 mRNA, complete cds   |
| 5884                   | 19073                 | 32381             | 5.27                 | 2.9E-01                                       | X56098.1                 | NT                            | B. subtilis levanase operon levD, levE, levF, levG and sacC (partial) genes for fructose phosphotransferase<br>system polypeptides P16,18,28,30 and levanase  |
| 5884                   | 19073                 | 32382             | 5.27                 | 2.9E-01                                       | X56098.1                 | NT                            | B. subtilis levanase operon levD, levE, levF, levG and sacC (partial) genes for fructose phosphotransferase<br>system polypeptides P16,18,28,30 and levanase  |
| 5907                   | 19085                 | 32397             | 5.53                 | 2.9E-01                                       | 6678662                  | NT                            | Mus musculus Eph receptor A8 (EphA8), mRNA  |
| 6181                   | 18357                 | 32705             | 1.65                 | 2.9E-01                                       | AA418145.1               | EST_HUMAN                     | z097b12.r1 Soares NIH-HMP1_S1 Homo sapiens cDNA clone IMAGE:767711 5'   |
| 6411                   | 19580                 | 32841             | 1.07                 | 2.9E-01                                       | AF797128.1               | EST_HUMAN                     | w027c05.x1 NCI_CGAP_Ju24 Homo sapiens cDNA clone IMAGE:2342312 3' similar to contains L1.L1 L1<br>repetitive element;   |
| 6455                   | 19322                 | 32886             | 2.22                 | 2.9E-01                                       | U08420.1                 | NT                            | Bos taurus myosin I mRNA, complete cds  |
| 7001                   | 20137                 | 33555             | 0.71                 | 2.9E-01                                       | AF321001.1               | NT                            | Suaeda maritima subsp. salsa S-adenosylmethionine synthetase 2 mRNA, complete cds   |
| 7126                   | 18552                 | 31468             | 1.4                  | 2.9E-01                                       | AF142328.1               | NT                            | Mus musculus Filh protein (Filh) gene, complete cds; and Ligh protein (Ligh) gene, partial cds  |
| 7245                   | 20328                 | 33773             | 3.11                 | 2.9E-01                                       | C04389                   | SWISSPROT                     | PUTATIVE MULTICOPPER OXIDASE YDR506C  |
| 7310                   | 20382                 | 33852             | 1.54                 | 2.9E-01                                       | AF100856.1               | NT                            | Mus musculus major histocompatibility locus class II region; Fas-binding protein Daxx (DAXX) gene, partial<br>cds; Birtg1 (BING1), tapasin (tapasin), RalGDS-like factor (RLF), KE2 (KE2), BING4 (BING4), beta1, 3-<br>galactosyl transferase (beta1,3-galactosyl tr> |
| 8104                   | 21186                 | 34705             | 1.61                 | 2.9E-01                                       | BE540422.1               | EST_HUMAN                     | 601065830F1 NIH_MGC_10 Homo sapiens cDNA clone IMAGE:3452287 5'   |
| 8104                   | 21186                 | 34706             | 1.61                 | 2.9E-01                                       | BE540422.1               | EST_HUMAN                     | 601065830F1 NIH_MGC_10 Homo sapiens cDNA clone IMAGE:3452287 5'   |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 8343                   | 21424                 | 34940             | 0.84                 | 2.9E-01                                       | AJ237837.1               | NT                            | Bos taurus partial stat5A gene, exons 5-19   |
| 8343                   | 21424                 | 34950             | 0.84                 | 2.9E-01                                       | AJ237837.1               | NT                            | Bos taurus partial stat5A gene, exons 5-19   |
| 8356                   | 21437                 |                   | 0.75                 | 2.9E-01                                       | BF217743.1               | EST_HUMAN                     | 601882570F1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:4085113 5'  |
|                        |                       |                   |                      |   |                          |                               | Buchnera aphidicola plasmid pLeu isolate M1 2-isopropylmalate synthase (leuA) gene, partial cds; 3-isopropylmalate dehydrogenase (leuB) gene, complete cds; and isopropylmalate dehydrogenase subunit (leuC) gene, partial cds |
| 8534                   | 21615                 |                   | 0.53                 | 2.9E-01                                       | AF197466.1               | NT                            | AL160810 NT2RP2 Homo sapiens cDNA clone NT2RP2003901 3'  |
| 8794                   | 21873                 | 35412             | 0.82                 | 2.9E-01                                       | AU160910.1               | EST_HUMAN                     | Arabidopsis thaliana sulfurylurea receptor-like protein mRNA, complete cds   |
| 9125                   | 22204                 | 35747             | 1.09                 | 2.9E-01                                       | AF225808.1               | NT                            | Arabidopsis thaliana sulfurylurea receptor-like protein mRNA, complete cds   |
| 9233                   | 22311                 | 35853             | 0.81                 | 2.9E-01                                       | M22452.1                 | NT                            | Baboon lymphocyte homing/adhesion receptor mRNA, complete cds  |
| 9447                   | 22583                 | 36125             | 0.98                 | 2.9E-01                                       | AJ248287.1               | NT                            | Pyrococcus abyssi complete genome; segment 5/8   |
| 9447                   | 22583                 | 36126             | 0.98                 | 2.9E-01                                       | AJ248287.1               | NT                            | Pyrococcus abyssi complete genome; segment 5/8   |
| 10405                  | 23440                 | 37047             | 0.46                 | 2.9E-01                                       | AW294100.1               | EST_HUMAN                     | UI-H-B12-ahg-b-02-0-UI.s1 NCL_CGAP_Sub4 Homo sapiens cDNA clone IMAGE:2728714 3'   |
| 10405                  | 23440                 | 37048             | 0.46                 | 2.9E-01                                       | AW294100.1               | EST_HUMAN                     | UI-H-B12-ahg-b-02-0-UI.s1 NCL_CGAP_Sub4 Homo sapiens cDNA clone IMAGE:2728714 3'   |
| 11133                  | 24205                 | 37830             | 1.94                 | 2.9E-01                                       | AJ128843.1               | NT                            | Trypanosoma cruzi stage-specific surface glycoprotein gp82 (gp82) mRNA, partial cds  |
| 11433                  | 24494                 | 38159             | 1.79                 | 2.9E-01                                       | V01394.1                 | NT                            | Torpedo californica mRNA encoding acetylcholine receptor gamma subunit   |
| 11433                  | 24494                 | 38160             | 1.79                 | 2.9E-01                                       | V01394.1                 | NT                            | Torpedo californica mRNA encoding acetylcholine receptor gamma subunit   |
|                        |                       |                   |                      |   |                          |                               | my55h02.s1 NCL_CGAP_PT12 Homo sapiens cDNA clone IMAGE:1273779 similar to contains LTR8.12 LTR8 repetitive element   |
| 11881                  | 24889                 | 38588             | 2.71                 | 2.9E-01                                       | AA935373.1               | EST_HUMAN                     | Campylobacter jejuni NCTC11168 complete genome; segment 5/8  |
| 11888                  | 24874                 | 38571             | 3.12                 | 2.9E-01                                       | AL139078.2               | NT                            | Rattus norvegicus activin receptor-like kinase 7 (ALK7) mRNA, complete cds   |
| 11900                  | 24888                 | 38587             | 2.09                 | 2.9E-01                                       | U35025.1                 | NT                            | Rattus norvegicus activin receptor-like kinase 7 (ALK7) mRNA, complete cds   |
| 11900                  | 24888                 | 38588             | 2.09                 | 2.9E-01                                       | U35025.1                 | NT                            | Rattus norvegicus activin receptor-like kinase 7 (ALK7) mRNA, complete cds   |
|                        |                       |                   |                      |   |                          |                               | w28805.s1 NCL_CGAP_Bm25 Homo sapiens cDNA clone IMAGE:2588821 3' similar to contains element   |
| 12677                  | 25452                 | 32017             | 1.85                 | 2.9E-01                                       | AW005671.1               | EST_HUMAN                     | MER29 repetitive element   |
| 12774                  | 25516                 |                   | 1.89                 | 2.9E-01                                       | V00202.1                 | NT                            | D. melanogaster: part of the 44D cuticle gene cluster encoding cuticle gene 1  |
| 12777                  | 25519                 | 32001             | 2.23                 | 2.9E-01                                       | AF092493.1               | NT                            | Homo sapiens TNF- $\alpha$ -inducible RNA binding protein (TIRP) gene, complete cds  |
| 13125                  | 25734                 | 31944             | 1.24                 | 2.9E-01                                       | Y08937.1                 | NT                            | Chlamydomonas reinhardtii mRNA for nitrite reductase structural locus  |
| 13125                  | 25734                 | 31945             | 1.24                 | 2.9E-01                                       | Y08937.1                 | NT                            | Chlamydomonas reinhardtii mRNA for nitrite reductase structural locus  |
| 13204                  | 25785                 | 31919             | 1.4                  | 2.9E-01                                       | AF200418.1               | NT                            | Callinectes sapidus cadmium-inducible metallothionein CdMT-1 mRNA, complete cds  |
| 582                    | 13774                 |                   | 2.04                 | 2.9E-01                                       | U67136.1                 | NT                            | Rattus norvegicus A-kinase anchoring protein AKAP150 mRNA, complete cds  |
| 587                    | 13778                 |                   | 1.90                 | 2.9E-01                                       | U28145.1                 | NT                            | Rattus norvegicus A-kinase anchoring protein, complete cds; coat protein, complete cds   |
| 1107                   | 14272                 | 27331             | 3.34                 | 2.9E-01                                       | AF168050.1               | NT                            | Prune dwarf virus movement protein, complete cds   |
| 1308                   | 14462                 | 27529             | 2.19                 | 2.9E-01                                       | BE313442.1               | EST_HUMAN                     | Guinea guinea oocyte maturation factor Mos (o-mos) gene, partial cds   |
| 1308                   | 14462                 | 27530             | 2.19                 | 2.9E-01                                       | BE313442.1               | EST_HUMAN                     | 601148733F1 NIH_MGC_19 Homo sapiens cDNA clone IMAGE:3163688 5'  |
| 1319                   | 14475                 | 27541             | 1.2                  | 2.9E-01                                       | D86550.1                 | NT                            | 601148733F1 NIH_MGC_19 Homo sapiens cDNA clone IMAGE:3163688 5'  |
|                        |                       |                   |                      |   |                          |                               | Human mRNA for setine/threonine protein kinase, complete cds   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 1768                   | 14915                 | 28011             | 1.87                 | 2.8E-01                                       | AW59020.1                | EST_HUMAN                     | QV1-CT0364-120200-065-b06 CT0364 Homo sapiens cDNA  |
| 2069                   | 15210                 | 28326             | 1.49                 | 2.8E-01                                       | AL047820.1               | EST_HUMAN                     | DKFZp568i2321_r1 586 (synonym: huter1) Homo sapiens cDNA clone DKFZp568i2321  |
| 2200                   | 15335                 | 28402             | 1.51                 | 2.8E-01                                       | AW511195.1               | EST_HUMAN                     | hd44b03.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2912333 3'   |
| 2542                   | 15367                 | 28781             | 2.98                 | 2.8E-01                                       | AE000494.1               | NT                            | Escherichia coli K-12 MG1655 section 394 of 400 of the complete genome  |
| 2542                   | 15367                 | 28792             | 2.98                 | 2.8E-01                                       | AE000494.1               | NT                            | Escherichia coli K-12 MG1655 section 384 of 400 of the complete genome  |
| 2612                   | 15736                 |                   | 2.95                 | 2.8E-01                                       | AL181585.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 65   |
| 2730                   | 15948                 | 28938             | 1.16                 | 2.8E-01                                       | AB020376.1               | NT                            | Arabidopsis thaliana mRNA for lipoyltransferase, complete cds   |
| 3035                   | 16211                 |                   | 1.37                 | 2.8E-01                                       | AF179480.1               | NT                            | Toxoplasma gondii 60kDa heat-shock protein (HSP60) mRNA, partial cds  |
| 3038                   | 16212                 | 28234             | 2.52                 | 2.8E-01                                       | Z14037.1                 | NT                            | B. taunus microsatellite (ETH121)   |
| 3038                   | 16212                 | 28235             | 2.52                 | 2.8E-01                                       | Z14037.1                 | NT                            | B. taunus microsatellite (ETH121)   |
| 3468                   | 16833                 | 28652             | 1.05                 | 2.8E-01                                       | AP000004.1               | NT                            | Pyrococcus horikoshii OT3 genomic DNA, 77001-99400 nt. position (47)  |
| 4103                   | 17257                 | 30287             | 1.67                 | 2.8E-01                                       | AE001180.1               | NT                            | Borrelia burgdorferi (section 68 of 70) of the complete genome  |
| 4240                   | 17386                 |                   | 0.6                  | 2.8E-01                                       | AE004450.1               | NT                            | Pseudomonas aeruginosa PA01, section 11 of 629 of the complete genome   |
| 4315                   | 17458                 |                   | 2.17                 | 2.8E-01                                       | AI090888.1               | EST_HUMAN                     | ov44g10.x1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:1640228 3' similar to contains Alu repetitive element; contains element MER22 repetitive element ; |
| 4582                   | 17719                 | 30702             | 2                    | 2.8E-01                                       | P13615                   | SWISSPROT                     | RNA POLYMERASE BETA SUBUNIT (LARGE STRUCTURAL PROTEIN) (L PROTEIN)  |
| 4944                   | 18074                 | 31049             | 0.92                 | 2.8E-01                                       | AF075238.1               | NT                            | Hepatitis G virus isolate 60 (SZNAE12) polyprotein precursor, gene, partial cds   |
| 4950                   | 18080                 | 31056             | 4.95                 | 2.8E-01                                       | AF030154.1               | NT                            | Bovine adenovirus 3 complete genome   |
| 4984                   | 18113                 | 31080             | 1.52                 | 2.8E-01                                       | BF528188.1               | EST_HUMAN                     | 602042801F1 NCI_CGAP_Brim57 Homo sapiens cDNA clone IMAGE:4180129 5'  |
| 5008                   | 18135                 | 31109             | 3.66                 | 2.8E-01                                       | AI272689.1               | EST_HUMAN                     | q159c11.x1 Soares_NIHIMPu_S1 Homo sapiens cDNA clone IMAGE:1876628 3' similar to contains Alu repetitive element; contains element LTR5 repetitive element ;  |
| 5318                   | 18473                 | 31404             | 0.61                 | 2.8E-01                                       | X60767.1                 | NT                            | Mouse Kv3.3 gene for potassium channel protein, exon 2  |
| 5426                   | 25804                 | 31602             | 23.61                | 2.8E-01                                       | AA349897.1               | EST_HUMAN                     | EST157072 Infant brain Homo sapiens cDNA 5' end   |
| 5723                   | 18918                 | 32211             | 2.67                 | 2.8E-01                                       | AB016825.1               | NT                            | Homo sapiens OCTN2 gene, complete cds   |
| 5838                   | 19124                 |                   | 0.93                 | 2.8E-01                                       | AW582583.1               | EST_HUMAN                     | CM1-BN0024-150200-119-g12 BN0024 Homo sapiens cDNA  |
| 6042                   | 19225                 | 32548             | 0.66                 | 2.8E-01                                       | AA765293.1               | EST_HUMAN                     | oa01d06.s1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:1303691 3' similar to gb:M34639 FK606-BINDING PROTEIN (HUMAN);   |
| 6059                   | 19241                 |                   | 0.64                 | 2.8E-01                                       | AA404576.1               | EST_HUMAN                     | Z44101.r1 Soares ovary tumor NbHOT Homo sapiens cDNA clone IMAGE:724921 5' similar to contains Alu repetitive element;  |
| 6305                   | 20212                 |                   | 0.67                 | 2.8E-01                                       | M36968.1                 | NT                            | Bovine 680 bp repeated unit of 1.723 satellite DNA  |
| 6347                   | 19617                 | 32874             | 1.65                 | 2.8E-01                                       | AF003124.1               | NT                            | Mesembryanthemum crystallinum fructose-bisphosphate aldolase mRNA, complete cds   |
| 6347                   | 19617                 | 32875             | 1.65                 | 2.8E-01                                       | AF003124.1               | NT                            | Mesembryanthemum crystallinum fructose-bisphosphate aldolase mRNA, complete cds   |
| 6870                   | 20022                 | 33432             | 7.84                 | 2.8E-01                                       | BF511215.1               | EST_HUMAN                     | U1-H-B14-ecf-f04-0-U1.s1 NCI_CGAP_Sub8 Homo sapiens cDNA clone IMAGE:3085182 3'   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 7145                   | 20280                 | 33721             | 0.64                 | 2.8E-01                                       | U65300.1                 | NT                            | Orthomyx heterodurus cytochrome b (cytb) gene, mitochondrial gene encoding mitochondrial protein, complete cds   |
| 7589                   | 20669                 |                   | 1.14                 | 2.8E-01                                       | U05693.1                 | NT                            | Martelia quadrifolia ribulose-1,5-bisphosphate carboxylase/oxygenase large subunit (rbcl) gene, chloroplast gene encoding chloroplast protein, partial cds |
| 8284                   | 21366                 | 34884             | 1.31                 | 2.8E-01                                       | A1346126.1               | EST_HUMAN                     | qp48r01.x1 NCL CGAP_Cc8 Homo sapiens cDNA clone IMAGE:1926289 3' similar to gb:X06323_cds1 MITOCHONDRIAL 60S RIBOSOMAL PROTEIN L3 (HUMAN);                 |
| 8284                   | 21366                 |                   | 1.31                 | 2.8E-01                                       | A1346126.1               | EST_HUMAN                     | qp48r01.x1 NCL CGAP_Cc8 Homo sapiens cDNA clone IMAGE:1926289 3' similar to gb:X06323_cds1 MITOCHONDRIAL 60S RIBOSOMAL PROTEIN L3 (HUMAN);                 |
| 8404                   | 21485                 | 35014             | 2.31                 | 2.8E-01                                       | U51698.1                 | NT                            | Homo sapiens lanosterol 14-alpha demethylase cytochrome P450 (CYP51) gene, exon 5  |
| 8712                   | 21792                 | 33328             | 0.6                  | 2.8E-01                                       | AA911629.1               | EST_HUMAN                     | alpha205.s1 NCL CGAP_Co12 Homo sapiens cDNA clone IMAGE:1419683 3' similar to gb:M87789 IG GAMMA-1 CHAIN C REGION (HUMAN);                                 |
| 8789                   | 21858                 |                   | 7.72                 | 2.8E-01                                       | BF347847.1               | EST_HUMAN                     | 602022887F1 NCL CGAP_Bim67 Homo sapiens cDNA clone IMAGE:4198525 5'  |
| 9668                   | 22628                 | 36109             | 1.14                 | 2.8E-01                                       | U17261.1                 | NT                            | Neurospora crassa negative regulator sulfur controller-2 (scm-2) gene, complete cds  |
| 9912                   | 22952                 |                   | 1.16                 | 2.8E-01                                       | L13654.1                 | NT                            | Lycopodium obscurum peroxidase (TPX1) mRNA, complete cds   |
| 10092                  | 23130                 | 36733             | 0.98                 | 2.8E-01                                       | AF132728.1               | NT                            | Escherichia coli translocated intimin receptor Tir (tir) gene, complete cds  |
| 10092                  | 23130                 | 36734             | 0.98                 | 2.8E-01                                       | AF132728.1               | NT                            | Escherichia coli translocated intimin receptor Tir (tir) gene, complete cds  |
| 10152                  | 23189                 | 36786             | 0.46                 | 2.8E-01                                       | AE001310.1               | NT                            | Chlamydia trachomatis section 37 of 87 of the complete genome  |
| 10156                  | 23193                 | 36789             |                      |   |                          | NT                            | Rattus norvegicus glycerol-3-phosphate dehydrogenase gene, promoters A and B and exons 1a and 1b; nuclear gene for mitochondrial product                   |
| 10265                  | 23300                 | 36898             | 0.7                  | 2.8E-01                                       | AF284393.1               | NT                            | Homo sapiens hypothetical protein (LOC51319), mRNA   |
| 10519                  | 23554                 |                   | 3.8                  | 2.8E-01                                       | 7708163                  | NT                            | Homo sapiens hypothetical protein (LOC51319), mRNA   |
| 10561                  | 23598                 |                   | 1.1                  | 2.8E-01                                       | 8028154                  | NT                            | Fujinami sarcoma virus, complete genome  |
| 10682                  | 24061                 | 37202             | 0.5                  | 2.8E-01                                       | BE969727.2               | EST_HUMAN                     | 601654822R1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:3639785 3'  |
| 10682                  | 24061                 | 37695             | 1.88                 | 2.8E-01                                       | BF241062.1               | EST_HUMAN                     | 601880794F1 NIH_MGC_56 Homo sapiens cDNA clone IMAGE:4109350 5'  |
| 10682                  | 24061                 | 37696             | 1.88                 | 2.8E-01                                       | BF241062.1               | EST_HUMAN                     | 601880794F1 NIH_MGC_56 Homo sapiens cDNA clone IMAGE:4109350 5'  |
| 11011                  | 24080                 | 37727             | 3.01                 | 2.8E-01                                       | BF696970.1               | EST_HUMAN                     | 601862148F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:4076028 5'  |
| 11119                  | 24191                 | 37823             |                      |   |                          | NT                            | Drosophila heteronema fruitless (fru) gene, alternative splice products, 5' flanking region, exons 1 through 7 and complete cds                            |
| 11556                  | 24511                 |                   | 1.53                 | 2.8E-01                                       | AF081682.1               | NT                            | 602137418F1 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:4273853 5'  |
| 11551                  | 24840                 | 36533             | 3.58                 | 2.8E-01                                       | BF674023.1               | EST_HUMAN                     | Pyrococcus abyssi complete genome; segment 3/6   |
| 11551                  | 24840                 | 36534             | 1.55                 | 2.8E-01                                       | AJ248285.1               | NT                            | Pyrococcus abyssi complete genome; segment 3/6   |
| 11551                  | 24840                 | 36534             | 1.55                 | 2.8E-01                                       | AJ248285.1               | NT                            | Pyrococcus abyssi complete genome; segment 3/6   |
| 12715                  | 25475                 |                   | 12.79                | 2.8E-01                                       | D88329.1                 | NT                            | Mus musculus DNA for prostaglandin D2 synthase, complete cde   |
| 12946                  | 25502                 | 31987             | 7.61                 | 2.8E-01                                       | BE178698.1               | EST_HUMAN                     | PM4-HT0606-030400-001-e07 HT0606 Homo sapiens cDNA   |
| 12675                  | 25682                 | 31996             | 1.29                 | 2.8E-01                                       | BE000116.1               | EST_HUMAN                     | 601673020F1 NIH_MGC_27 Homo sapiens cDNA clone IMAGE:3956598 5'  |
| 13052                  | 26098                 |                   | 1.59                 | 2.8E-01                                       | 11433629                 | NT                            | Homo sapiens CDC42-binding protein kinase beta (DNPK-like) (CDC42BPB), mRNA  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 489                    | 13683                 | 26717             | 4.34                 | 2.7E-01                                       | Y17324.1                 | NT                            | Rattus norvegicus CDK104 mRNA   |
| 628                    | 13613                 | 26835             | 13.64                | 2.7E-01                                       | AA450061.1               | EST_HUMAN                     | z36b10.e1 Soares_totd_fetus_Nb2HF8_9w Homo sapiens cDNA clone IMAGE:788827 3' similar to contains Alu repetitive element;                 |
| 1200                   | 14446                 | 27512             | 2.04                 | 2.7E-01                                       | AB004900.1               | NT                            | Ipomoea purpurea transposable element Tip100 gene for transposase, complete cde   |
| 1650                   | 14803                 |                   | 1.63                 | 2.7E-01                                       | X79815.1                 | NT                            | G. lambia SR2 gene  |
| 1768                   | 14917                 | 28012             | 3.16                 | 2.7E-01                                       | W58067.1                 | EST_HUMAN                     | zdz2h10.1 Soares_fetal_heart_Nb4H19W Homo sapiens cDNA clone IMAGE:341443 5'  |
| 1817                   | 14968                 | 28059             | 1.46                 | 2.7E-01                                       | P03341                   | SWISSPROT                     | GAG POLYPROTEIN [CONTAINS: INNER COAT PROTEIN P12; CORE PROTEIN P16; CORE SHELL PROTEIN P30; NUCLEOPROTEIN P10]                           |
| 2204                   | 16057                 |                   | 3.1                  | 2.7E-01                                       | AF047575.1               | NT                            | Rattus norvegicus vesicular monocarboxylate transporter type 2, promoter region and exon 1  |
| 2250                   | 15383                 | 28510             | 0.94                 | 2.7E-01                                       | AI872772.1               | EST_HUMAN                     | EST175679 Infant brain, Benito Soares Homo sapiens cDNA clone UHIBO1R 5' end  |
| 2250                   | 15383                 | 28511             | 0.94                 | 2.7E-01                                       | AI872772.1               | EST_HUMAN                     | EST175679 Infant brain, Benito Soares Homo sapiens cDNA clone UHIBO1R 5' end  |
| 2440                   | 15558                 | 28695             | 7.07                 | 2.7E-01                                       | Y13968.1                 | NT                            | Feline immunodeficiency virus env gene, isolate ITTO0088PIU (M88), partial  |
| 2526                   | 15551                 | 28775             | 4.36                 | 2.7E-01                                       | AI810858.1               | EST_HUMAN                     | tx430t1.1 x2 NCI CGAP_Lu26 Homo sapiens cDNA clone IMAGE:2046836 3' similar to contains element L1 repetitive element;                    |
| 3049                   | 16225                 |                   | 0.98                 | 2.7E-01                                       | BF086284.1               | EST_HUMAN                     | QMT1-H70875-080900-385-e05 HT0875 Homo sapiens cDNA   |
| 3361                   | 16333                 | 29547             | 0.68                 | 2.7E-01                                       | 8363820                  | NT                            | Rattus norvegicus insulin receptor (Insr), mRNA   |
| 4118                   | 17272                 | 30271             | 1.94                 | 2.7E-01                                       | AI628015.1               | EST_HUMAN                     | wc92a11.x1 NCI CGAP_Kid11 Homo sapiens cDNA clone IMAGE:2462828 3'  |
| 4133                   | 17288                 | 30281             | 0.68                 | 2.7E-01                                       | AF216214.1               | NT                            | Drosophila buzzatii alpha-esterase 6 (ae6) gene, partial cds  |
| 4133                   | 17288                 | 30282             | 0.68                 | 2.7E-01                                       | AF216214.1               | NT                            | Drosophila buzzatii alpha-esterase 6 (ae6) gene, partial cds  |
| 4140                   | 17292                 | 30286             | 2.39                 | 2.7E-01                                       | L77669.1                 | NT                            | Homo sapiens DiGeorge syndrome critical region, telomeric end   |
| 5153                   | 18275                 |                   | 4.46                 | 2.7E-01                                       | AW856131.1               | EST_HUMAN                     | RC1-CT0286-230200-018-e03 CT0286 Homo sapiens cDNA  |
| 5381                   | 18583                 | 31452             | 1.98                 | 2.7E-01                                       | PI17277                  | SWISSPROT                     | HOMEOBOX PROTEIN HOXA4 (HOXA-1.4)   |
| 5907                   | 18902                 |                   | 1.31                 | 2.7E-01                                       | AB033174.1               | NT                            | Astrocytoma myxophthalma mitochondrial cyto gene for cytochrome b, partial cds  |
| 6472                   | 19639                 | 32898             | 0.86                 | 2.7E-01                                       | Q00918                   | SWISSPROT                     | LATENT TRANSFORMING GROWTH FACTOR BETA BINDING PROTEIN 1 PRECURSOR (TRANSFORMING GROWTH FACTOR BETA-1 BINDING PROTEIN 1) (TGF-BETA1-BP-1) |
| 6472                   | 19639                 | 32899             | 0.86                 | 2.7E-01                                       | Q00918                   | SWISSPROT                     | (TRANSFORMING GROWTH FACTOR BETA-1 MASKING PROTEIN, LARGE SUBUNIT)  |
| 6745                   | 19801                 | 33293             | 1.05                 | 2.7E-01                                       | AE001094.1               | SWISSPROT                     | LATENT TRANSFORMING GROWTH FACTOR BETA BINDING PROTEIN 1 PRECURSOR (TRANSFORMING GROWTH FACTOR BETA-1 BINDING PROTEIN 1) (TGF-BETA1-BP-1) |
| 6745                   | 19801                 | 33294             | 1.05                 | 2.7E-01                                       | AE001094.1               | NT                            | (TRANSFORMING GROWTH FACTOR BETA-1 MASKING PROTEIN, LARGE SUBUNIT)  |
| 6918                   | 20233                 | 33667             | 1.74                 | 2.7E-01                                       | Q61554                   | SWISSPROT                     | Archaeoglobus fulgidus section 13 of 172 of the complete genome   |
| 7197                   | 20062                 |                   | 0.77                 | 2.7E-01                                       | AI540070.1               | EST_HUMAN                     | Archaeoglobus fulgidus section 18 of 172 of the complete genome   |
| 7511                   | 20595                 | 34058             | 0.92                 | 2.7E-01                                       | Q11078                   | SWISSPROT                     | FIBRILLIN 1 PRECURSOR   |
|                        |                       |                   |                      |   |                          |                               | td08h08.x1 NCI CGAP_CLL1 Homo sapiens cDNA clone IMAGE:2075103 3'   |
|                        |                       |                   |                      |   |                          |                               | HYPOTHETICAL 20.9 KD PROTEIN B0563.3 IN CHROMOSOME X  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 7734                   | 20795                 | 34283             | 0.87                 | 2.7E-01                                       | Q01168                   | SWISSPROT                     | NITROGEN REGULATORY PROTEIN NUT1   |
| 7734                   | 20795                 | 34284             | 0.87                 | 2.7E-01                                       | Q01168                   | SWISSPROT                     | NITROGEN REGULATORY PROTEIN NUT1   |
| 7865                   | 20919                 | 34425             | 2.1                  | 2.7E-01                                       | AF248054.1               | NT                            | Bos taurus micromolar calcium activated neutral protease 1 (CAPN1) gene, exons 11-20, and partial cds                          |
| 7865                   | 20919                 | 34426             | 2.1                  | 2.7E-01                                       | AF248054.1               | NT                            | Bos taurus micromolar calcium activated neutral protease 1 (CAPN1) gene, exons 11-20, and partial cds                          |
| 7917                   | 20938                 | 34474             | 0.72                 | 2.7E-01                                       | AA351121.1               | EST_HUMAN                     | EST158740 Infant brain Homo sapiens cDNA 5' and similar to similar to myosin-binding protein H                                 |
| 7917                   | 20938                 | 34475             | 0.72                 | 2.7E-01                                       | AA351121.1               | EST_HUMAN                     | EST158740 Infant brain Homo sapiens cDNA 5' and similar to similar to myosin-binding protein H                                 |
| 7978                   | 21026                 | 34540             | 0.86                 | 2.7E-01                                       | L01081.1                 | NT                            | Oryzobagus cuticulus UDP-glucuronosyltransferase (UGT2B13) mRNA, complete cds  |
| 8048                   | 21131                 | 34651             | 0.86                 | 2.7E-01                                       | AA013147.1               | EST_HUMAN                     | z335b11.s1 Soares retina N2b-4HR Homo sapiens cDNA clone IMAGE:360957 3' similar to contains Alu repetitive element            |
| 8330                   | 21412                 | 34938             | 0.56                 | 2.7E-01                                       | AW868503.1               | EST_HUMAN                     | MR1-SN0082-100500-002-409 SN0082 Homo sapiens cDNA   |
| 8380                   | 21461                 | 34984             | 0.80                 | 2.7E-01                                       | R30257.1                 | EST_HUMAN                     | Yc81K08.s1 Soares infant brain 1N1B Homo sapiens cDNA clone IMAGE:23511 3'   |
| 8486                   | 21587                 | 35104             | 0.83                 | 2.7E-01                                       | AL161562.2               | NT                            | Arabisopsis thaliana DNA chromosome 4, contig fragment No. 52  |
| 8859                   | 22038                 | 35580             | 1.4                  | 2.7E-01                                       | Q14764                   | SWISSPROT                     | MAJOR VAULT PROTEIN (MVP) (LUNG RESISTANCE-RELATED PROTEIN)  |
| 9334                   | 22589                 | 36171             | 10.56                | 2.7E-01                                       | O83809                   | SWISSPROT                     | THREONYL-TRNA SYNTHETASE (THREONINE-TRNA LIGASE) (THRRS)   |
| 9334                   | 22589                 | 36172             | 10.56                | 2.7E-01                                       | O83809                   | SWISSPROT                     | THREONYL-TRNA SYNTHETASE (THREONINE-TRNA LIGASE) (THRRS)   |
| 9337                   | 22602                 |                   | 2.80                 | 2.7E-01                                       | P37828                   | SWISSPROT                     | FIMBRIAE W PROTEIN   |
| 10005                  | 23043                 | 36638             | 0.8                  | 2.7E-01                                       | D88880.1                 | NT                            | Rattus norvegicus DNA for peroxisome assembly factor-2, exon 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 and complete cds |
| 10266                  | 23321                 | 36823             | 0.9                  | 2.7E-01                                       | AF081848.1               | NT                            | Oryzobagus cuticulus calgranulin C mRNA, partial cds   |
| 10323                  | 23398                 | 36968             | 2.06                 | 2.7E-01                                       | AF087434.1               | NT                            | Mus musculus transcription factor NF-A1c isoform a (NF-A1c) mRNA, complete cds   |
| 10455                  | 23490                 | 37099             | 1.06                 | 2.7E-01                                       | AF156539.1               | NT                            | Homo sapiens xeroderma pigmentosum complementation group C (XPC) gene, intron 9  |
| 10455                  | 23490                 | 37100             | 1.06                 | 2.7E-01                                       | AF156539.1               | NT                            | Homo sapiens xeroderma pigmentosum complementation group C (XPC) gene, intron 9  |
| 10749                  | 23762                 |                   | 0.51                 | 2.7E-01                                       | AB011978.1               | NT                            | Rattus norvegicus mRNA for class I beta-tubulin, complete cds  |
| 10765                  | 23768                 | 37418             | 0.58                 | 2.7E-01                                       | AF281074.1               | NT                            | Homo sapiens neuropilin 2 (NRP2) gene, complete cds, alternatively spliced   |
| 10765                  | 23768                 | 37419             | 0.58                 | 2.7E-01                                       | AF281074.1               | NT                            | Homo sapiens neuropilin 2 (NRP2) gene, complete cds, alternatively spliced   |
| 11050                  | 24127                 | 37761             | 1.99                 | 2.7E-01                                       | AV705043.1               | EST_HUMAN                     | AV705043 ADB Homo sapiens cDNA clone ADBCOD05 5'   |
| 11050                  | 24127                 | 37762             | 1.99                 | 2.7E-01                                       | AV705043.1               | EST_HUMAN                     | AV705043 ADB Homo sapiens cDNA clone ADBCOD05 5'   |
| 11061                  | 24137                 |                   | 2.58                 | 2.7E-01                                       | AJ139289.1               | NT                            | Homo sapiens caveolin-1/-2 locus, Contig1, D7S622, genes CAV2 (exons 1, 2a, and 2b), CAV1 (exons 1 and 2)                      |
| 12816                  | 25942                 |                   | 1.49                 | 2.7E-01                                       | AB008782.1               | NT                            | Arabidopsis thaliana mRNA for sulfate transporter, complete cds  |
| 13034                  | 25681                 |                   | 2.75                 | 2.7E-01                                       | AF217491.1               | NT                            | Homo sapiens fragile 18D oxidoreductase (FOR) gene, exon 6   |
| 482                    | 16013                 | 26710             | 2.8                  | 2.6E-01                                       | P78411                   | SWISSPROT                     | IROQUOIS-CLASS HOMEODOMAIN PROTEIN IRX-2   |

Page 83 of 550  
Table 4  
Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 493                    | 13688                 |                   | 1.94                 | 2.6E-01                                       | D16450.1                 | NT                            | Bos taurus mRNA for mb-1, complete cds  |
| 1424                   | 14578                 | 27651             | 1.77                 | 2.6E-01                                       | BE865087.1               | EST_HUMAN                     | 601510838F1 NIH_MGC_71 Homo sapiens cDNA clone IMAGE:3912345 5'   |
| 1468                   | 14822                 | 27705             | 1.09                 | 2.6E-01                                       | AB013280.1               | NT                            | Cytidine max pseudogene for Bd 30K  |
| 1945                   | 15088                 | 28188             | 7.69                 | 2.6E-01                                       | AL161472.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 2  |
| 1946                   | 15088                 | 28188             | 7.69                 | 2.6E-01                                       | AL161472.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 2  |
|                        |                       |                   |                      |   |                          |                               | bb0440.x1 NIH_MGC_14 Homo sapiens cDNA clone IMAGE:2958451 3' similar to gb:M36072.6DS<br>RIBOSOMAL PROTEIN L7A (HUMAN); gb:M14689_cder1 Mouse surfeit locus surfat 3 protein gene<br>(MOUSE);  |
| 2159                   | 15295                 |                   | 10.39                | 2.6E-01                                       | AW733152.1               | EST_HUMAN                     | Human prealbumin gene, complete cds   |
| 2220                   | 15354                 | 28485             | 1.13                 | 2.6E-01                                       | MT1844.1                 | NT                            | 601126010F1 NIH_MGC_9 Homo sapiens cDNA clone IMAGE:2890043 5'  |
| 2811                   | 15735                 |                   | 11.68                | 2.6E-01                                       | BE272440.1               | EST_HUMAN                     | EST386635 MAGe resources, MAGM Homo sapiens cDNA  |
| 3161                   | 16336                 |                   | 1.11                 | 2.6E-01                                       | AW974531.1               | EST_HUMAN                     | Bacteriophage T2 DNA-(adenine-N6)methyltransferase (dam) gene, complete cds   |
| 3871                   | 16834                 | 28845             | 0.84                 | 2.6E-01                                       | M22342.1                 | NT                            | Homo sapiens acetylcholinesterase collagen-like tail subunit (COLQ) gene, exons 1A, 2, 3, 4, and 5  |
| 3733                   | 16904                 | 29809             | 1.67                 | 2.6E-01                                       | AF229118.1               | NT                            | EST371560 MAGe resources, MAGF Homo sapiens cDNA  |
| 4215                   | 17364                 | 30352             | 0.79                 | 2.6E-01                                       | AW959510.1               | EST_HUMAN                     | QV1-BT0630-040400-132-c03 B.T0630 Homo sapiens cDNA   |
| 4270                   | 17415                 | 30404             | 16.93                | 2.6E-01                                       | BE080598.1               | EST_HUMAN                     | Enterococcus faecium strain N87-330 vanD glycopeptide resistance gene cluster, complete cds; and<br>unknown gene  |
| 4478                   | 17618                 | 30597             | 1.71                 | 2.6E-01                                       | AF175283.1               | NT                            | Gallus gallus mRNA for skeletal myosin heavy chain, complete cds  |
| 4817                   | 17754                 | 30735             | 0.69                 | 2.6E-01                                       | AB021180.1               | NT                            | Gallus gallus mRNA for skeletal myosin heavy chain, complete cds  |
| 4817                   | 17754                 | 30736             | 0.69                 | 2.6E-01                                       | AB021180.1               | NT                            | Gallus gallus mRNA for skeletal myosin heavy chain, complete cds  |
| 4970                   | 17806                 | 30794             | 1.14                 | 2.6E-01                                       | AA457617.1               | EST_HUMAN                     | aa39d07.11 Stratagene fetal refseq 937202 Homo sapiens cDNA clone IMAGE:839477 5'   |
| 4770                   | 17905                 | 30887             | 2.26                 | 2.6E-01                                       | U01103.1                 | NT                            | Arabidopsis thaliana PSI type III chlorophyll a/b-binding protein (Lhcas3-1) mRNA, complete cds   |
| 4837                   | 17970                 | 30958             | 1.15                 | 2.6E-01                                       | AF142703.1               | NT                            | Ophrestia radicata matrinase-like protein (matK) gene, complete cds; chloroplast gene for chloroplast product   |
| 5086                   | 18214                 | 31187             | 3.63                 | 2.6E-01                                       | H04858.1                 | EST_HUMAN                     | y51e05.1 Soares placenta Nb21-F Homo sapiens cDNA clone IMAGE:152288 5'   |
| 6165                   | 18277                 |                   | 0.91                 | 2.6E-01                                       | AA894625.1               | EST_HUMAN                     | am33b11.1 Soares NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:1468606 5'  |
| 5457                   | 18657                 |                   | 1.28                 | 2.6E-01                                       | AB035972.1               | NT                            | Paramecium caudatum gene for PAP, complete cds  |
| 5565                   | 18762                 | 31802             | 0.97                 | 2.6E-01                                       | M86080.1                 | NT                            | Acetabacter xylinum cellulose synthase (bcsA) gene, partial cds, CMCax and CopAx genes, complete cds  |
| 5689                   | 18883                 |                   | 0.84                 | 2.6E-01                                       | AB82398.1                | EST_HUMAN                     | td16a03.x1 NCI_CGAP_Co16 Homo sapiens cDNA clone IMAGE:2075788 3' similar to contains element<br>MER35 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens protein translocase, JM26 protein, UDP-galactose translocator, plim-2 protooncogene homolog<br>plim-2h, and shal-type potassium channel genes, complete cds; JM12 protein and transcription factor IGHM<br>enhancer 3 genes, partial cds; and unknown gp |
| 5895                   | 19083                 | 32394             | 0.84                 | 2.6E-01                                       | AF207650.1               | NT                            |   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO. | Exon<br>SEQ ID<br>NO. | ORF SEQ<br>ID NO. | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 6196                   | 26211                 |                   | 2.57                 | 2.6E-01                                       | AE001811.1               | NT                            | Thermotoga maritima section 123 of 136 of the complete genome   |
| 8330                   | 19501                 | 32859             | 1.96                 | 2.6E-01                                       | AF582557.1               | EST_HUMAN                     | iso2a12.x1 NCL_CGAP_Pan1 Homo sapiens cDNA clone IMAGE:2227438 3' similar to SW:NDP1_RAT<br>Q04289 NEUROGENIC DIFFERENTIATION FACTOR 1; contains element LTR1 repetitive element; |
| 8330                   | 19501                 | 32860             | 1.96                 | 2.6E-01                                       | AF582557.1               | EST_HUMAN                     | iso2a12.x1 NCL_CGAP_Pan1 Homo sapiens cDNA clone IMAGE:2227438 3' similar to SW:NDP1_RAT<br>Q04289 NEUROGENIC DIFFERENTIATION FACTOR 1; contains element LTR1 repetitive element; |
| 8552                   | 19714                 | 33090             | 0.98                 | 2.6E-01                                       | AL162757.2               | NT                            | Neisseria meningitidis serogroup A strain Z2491 complete genome; segment 8/7  |
| 8807                   | 19961                 | 33384             | 0.74                 | 2.6E-01                                       | BE782052.1               | EST_HUMAN                     | 601581754F1 NIH_MGC_7 Homo sapiens cDNA clone IMAGE:3936156 5'  |
| 8807                   | 19961                 | 33385             | 0.74                 | 2.6E-01                                       | BE782052.1               | EST_HUMAN                     | 601581754F1 NIH_MGC_7 Homo sapiens cDNA clone IMAGE:3936156 5'  |
| 7183                   | 20315                 | 33758             | 1.04                 | 2.6E-01                                       | AB14380.1                | EST_HUMAN                     | wd48c04.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2331366 3' similar to gb:M37721<br>PEPTIDYL-GLYCINE ALPHA-AMIDATING MONOOXYGENASE PRECURSOR (HUMAN);                 |
| 7549                   | 20621                 | 34038             | 0.7                  | 2.6E-01                                       | BE148961.1               | EST_HUMAN                     | CML-HIT0245-031189-085-04 HT0245 Homo sapiens cDNA  |
| 7587                   | 25948                 |                   | 0.96                 | 2.6E-01                                       | AL139077.2               | NT                            | Campylobacter jejuni NCTC11168 complete genome; segment 4/6   |
| 7828                   | 20686                 |                   | 0.78                 | 2.6E-01                                       | AA186149.1               | EST_HUMAN                     | z082a01.11 Stragene HeLa cell s3 837216 Homo sapiens cDNA clone IMAGE:627872 5'   |
| 7918                   | 20989                 | 34476             | 1.73                 | 2.6E-01                                       | R10366.1                 | EST_HUMAN                     | y37a03.x1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:129004 3' similar to<br>gb:X12517 U1 SMALL NUCLEAR RIBONUCLEOPROTEIN C (HUMAN);                           |
| 8033                   | 21118                 | 34634             | 1.18                 | 2.6E-01                                       | R02411.1                 | EST_HUMAN                     | y82a07.11 Stragene fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:124212 5'   |
| 8088                   | 21170                 | 34685             | 1.3                  | 2.6E-01                                       | BE144331.1               | EST_HUMAN                     | MR0-HT0168-181189-003-412 HT0168 Homo sapiens cDNA  |
| 8528                   | 21610                 | 35148             | 2.97                 | 2.6E-01                                       | BF343588.1               | EST_HUMAN                     | 602014422F1 NCL_CGAP_Bm64 Homo sapiens cDNA clone IMAGE:4150306 5'  |
| 8605                   | 21886                 | 36223             | 1.74                 | 2.6E-01                                       | Q10109                   | SWISSPROT                     | HYPOTHETICAL 75.2 KD PROTEIN C11C11.02 IN CHROMOSOME II   |
| 8892                   | 21971                 | 35506             | 4.06                 | 2.6E-01                                       | BE830339.1               | EST_HUMAN                     | RC5-ET0082-310500-021-F10 ET0082 Homo sapiens cDNA  |
| 8892                   | 21971                 | 35507             | 4.08                 | 2.6E-01                                       | BE830339.1               | EST_HUMAN                     | RC5-ET0082-310500-021-F10 ET0082 Homo sapiens cDNA  |
| 9867                   | 22829                 | 36200             | 0.92                 | 2.6E-01                                       | X17804.1                 | NT                            | S. occidentalis INV gene for Invertase (EC 3.2.1.26)  |
| 9940                   | 22879                 |                   | 0.5                  | 2.6E-01                                       | AF057121.1               | NT                            | Lentia canadensis cytochrome b (cytb) gene, mitochondrial gene encoding mitochondrial protein, complete<br>cds  |
| 10072                  | 23110                 | 36713             | 1.13                 | 2.6E-01                                       | P87366                   | SWISSPROT                     | GREEN-SENSITIVE OPSIN (GREEN CONE PHOTORECEPTOR PIGMENT) (KPH-G)  |
| 10072                  | 23110                 | 36714             | 1.13                 | 2.6E-01                                       | P87366                   | SWISSPROT                     | GREEN-SENSITIVE OPSIN (GREEN CONE PHOTORECEPTOR PIGMENT) (KPH-G)  |
| 10393                  | 23428                 |                   | 0.63                 | 2.6E-01                                       | Q28295                   | SWISSPROT                     | VON WILLEBRAND FACTOR PRECURSOR (VWF)   |
| 10727                  | 23760                 |                   | 1.09                 | 2.6E-01                                       | Y10190.1                 | NT                            | Homo sapiens PH-EX gene   |
| 10840                  | 23873                 |                   | 0.48                 | 2.6E-01                                       | Y15874.2                 | NT                            | Danio rerio mRNA for RPT- $\alpha$ protein  |
| 11816                  | 24804                 |                   | 31.14                | 2.6E-01                                       | X51765.1                 | NT                            | Human lambda-immunoglobulin constant region complex (germline)  |
| 12468                  | 26070                 |                   | 4.14                 | 2.6E-01                                       | BE883491.1               | EST_HUMAN                     | 601511052F1 NIH_MGC_71 Homo sapiens cDNA clone IMAGE:3912612 5'   |
| 12535                  | 26365                 | 32069             | 3.86                 | 2.6E-01                                       | AF316896.1               | NT                            | Homo sapiens Na/K-ATPase gamma subunit (FXVD2) gene, complete cds, alternatively spliced  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 12922                  | 25607                 |                   | 2.04                 | 2.6E-01                                       | D88425.1                 | NT                            | Cavia cabya mRNA for serine/threonine kinase, complete cds   |
| 13007                  | 25663                 |                   | 1.78                 | 2.6E-01                                       | AE001713.1               | NT                            | Thermoboga maritima section 25 of 136 of the complete genome   |
| 13057                  | 25692                 |                   | 2.36                 | 2.6E-01                                       | AF141325.2               | NT                            | Homo sapiens inositol polyphosphate 1-phosphatase (INPP1) gene, complete cds   |
| 13068                  | 15735                 |                   | 1.43                 | 2.6E-01                                       | BE272440.1               | EST_HUMAN                     | 601126016F1 NIH_MGC_9 Homo sapiens cDNA clone IMAGE:2690043 5'   |
| 13107                  | 25722                 |                   | 2.04                 | 2.6E-01                                       | P47285                   | SWISSPROT                     | HYPOTHETICAL PROTEIN MG039   |
| 13150                  | 25748                 |                   | 2.4                  | 2.6E-01                                       | U30790.1                 | NT                            | Arabidopsis thaliana floral homeotic (AP3) gene, promoter region and partial cds   |
| 261                    | 13472                 | 26503             | 1.87                 | 2.5E-01                                       | 4502298                  | NT                            | Homo sapiens ATP synthase, H+ transporting, mitochondrial F1 complex, delta subunit (ATP6D), nuclear gene encoding mitochondrial protein, mRNA |
| 262                    | 13472                 | 26503             | 1.7                  | 2.5E-01                                       | 4502298                  | NT                            | Homo sapiens ATP synthase, H+ transporting, mitochondrial F1 complex, delta subunit (ATP6D), nuclear gene encoding mitochondrial protein, mRNA |
| 265                    | 13484                 |                   | 2.51                 | 2.5E-01                                       | M26501.1                 | NT                            | Starfish (P. ochraceus) cytoplasmic actin gene, complete cds   |
| 856                    | 14032                 | 27093             | 1.23                 | 2.5E-01                                       | U09984.1                 | NT                            | Mus musculus (CR/Swiss) glycerate dehydrogenase (Gapd-S) gene, complete cds  |
| 1086                   | 14251                 |                   | 1.76                 | 2.5E-01                                       | AE002166.1               | NT                            | Ureaplasma urealyticum section 57 of 59 of the complete genome   |
| 1145                   | 14310                 | 27307             | 5.45                 | 2.5E-01                                       | T88837.1                 | EST_HUMAN                     | ye11g07.r1 Stratiogene Ling (#637210) Homo sapiens cDNA clone IMAGE:117468 5'  |
| 1767                   | 14916                 |                   | 4.63                 | 2.5E-01                                       | 4885408                  | NT                            | Homo sapiens hyperpolarization activated cyclic nucleotide-gated potassium channel 4 (HCN4) mRNA   |
| 2479                   | 15008                 |                   | 11.21                | 2.5E-01                                       | AE000675.1               | NT                            | Aquifex aeolicus section 7 of 109 of the complete genome   |
| 2563                   | 15688                 | 28814             | 1.22                 | 2.5E-01                                       | 6679216                  | NT                            | Mus musculus protein-L-isoaspartate (D-aspartate) O-methyltransferase 1 (Pcm1), mRNA   |
| 2565                   | 15690                 |                   | 1.02                 | 2.5E-01                                       | AA251897.1               | EST_HUMAN                     | 2a11a12.r1 NCL_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:684882 5'   |
| 2702                   | 15820                 | 28936             | 1                    | 2.5E-01                                       | X95310.1                 | NT                            | B.taurus mRNA for D-aspartate oxidase  |
| 3489                   | 16666                 |                   | 3.34                 | 2.5E-01                                       | AW973471.1               | EST_HUMAN                     | EST385494 IMAGE resequences, MAGM Homo sapiens cDNA  |
| 3639                   | 16803                 | 29816             | 7.18                 | 2.5E-01                                       | AL161617.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 29  |
| 3950                   | 17108                 | 30106             | 1.25                 | 2.5E-01                                       | A1741483.1               | EST_HUMAN                     | wg11c07.x1 Soarees_NSF_F8_9W_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:2364780 3'   |
| 3950                   | 17108                 | 30106             | 1.25                 | 2.5E-01                                       | A1741483.1               | EST_HUMAN                     | wg11c07.x1 Soarees_NSF_F8_9W_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:2364780 3'   |
| 4438                   | 17678                 |                   | 0.88                 | 2.5E-01                                       | Q03314                   | SWISSPROT                     | PHIB PROTEIN   |
| 4737                   | 17872                 | 30855             | 0.7                  | 2.5E-01                                       | AF242491.1               | NT                            | Mus musculus neuronal apoptosis inhibitory protein 6 (Naiip6) gene, complete cds; and Naiip3 gene, exons 2-9 and 11-16                         |
| 4871                   | 18004                 |                   | 1.13                 | 2.5E-01                                       | Q27225                   | SWISSPROT                     | MOLT-INHIBITING HORMONE PRECURSOR (MIH)  |
| 4878                   | 18009                 | 30693             | 3.09                 | 2.5E-01                                       | AF007768.1               | NT                            | Choristoneura fumiferana diapause associated protein 2 (DAP2) mRNA, complete cds   |
| 4804                   | 18034                 | 31023             | 2.3                  | 2.5E-01                                       | AE004416.1               | NT                            | Vibrio cholerae chromosome II, section 73 of 93 of the complete chromosome   |
| 4826                   | 18058                 |                   | 3.54                 | 2.5E-01                                       | AJ230113.1               | NT                            | Mus musculus arnasin V gene, intron 4 segment containing 5' LTR and gag portion of MAERV-L (murine endogenous retrovirus) element              |
| 4954                   | 18084                 | 31060             | 0.8                  | 2.5E-01                                       | BE896785.1               | EST_HUMAN                     | 601437468F1 NIH_MGC_72 Homo sapiens cDNA clone IMAGE:3922800 5'  |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 4994                   | 18123                 | 31101             | 0.61                 | 2.5E-01                                       | U83656.1                 | NT                            | Rattus norvegicus NF-KB gene, promoter region  |
| 5212                   | 18333                 | 31303             | 0.62                 | 2.5E-01                                       | P27023                   | SWISSPROT                     | MAJOR SURFACE GLYCOPROTEIN G (ATTACHMENT GLYCOPROTEIN G)   |
| 5212                   | 18333                 | 31304             | 0.62                 | 2.5E-01                                       | P27023                   | SWISSPROT                     | MAJOR SURFACE GLYCOPROTEIN G (ATTACHMENT GLYCOPROTEIN G)   |
| 5337                   | 18450                 |                   | 1.08                 | 2.5E-01                                       | AA419208.1               | EST_HUMAN                     | z35a05.1 Soares ovary tumor NihHOT Homo sapiens cDNA clone IMAGE:755600 5' similar to gb:M88279  |
| 5441                   | 18941                 | 31620             | 12.21                | 2.5E-01                                       | S83330.1                 | NT                            | P59 PROTEIN (HUMAN);   |
| 6080                   | 18262                 | 32591             | 0.6                  | 2.5E-01                                       | AJ008345.1               | NT                            | T3 receptor-associated cofactor-1 [human, fetal liver, mRNA, 2630 nt]  |
| 6081                   | 18263                 |                   | 0.81                 | 2.5E-01                                       | AL163207.2               | NT                            | Homo sapiens KVLQ11 gene   |
| 6762                   | 18918                 | 33313             | 0.82                 | 2.5E-01                                       | AJ251973.1               | NT                            | Homo sapiens chromosome 21 segment HS21C007  |
| 7180                   | 20055                 | 33465             | 0.64                 | 2.5E-01                                       | 6394138                  | NT                            | Homo sapiens perlecan-1 gene   |
| 7607                   | 20581                 | 34054             | 0.71                 | 2.5E-01                                       | U13092.1                 | NT                            | Rattus norvegicus rab3 (RABIN3), mRNA  |
| 7536                   | 20608                 | 34319             | 1.13                 | 2.5E-01                                       | AF134119.1               | NT                            | Feline calicivirus CFV88 RNA helicase/cysteine protease/RNA-dependent RNA polymerase polyprotein precursor and capsid protein precursor, genes, complete cds; and unknown gene |
| 7770                   | 20828                 | 34365             | 0.82                 | 2.5E-01                                       | AL161506.2               | NT                            | Mus musculus SKD1 (Skd1) gene, complete cds  |
| 7814                   | 20860                 | 34365             | 4.23                 | 2.5E-01                                       | AL163282.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 18  |
| 8028                   | 21111                 | 34630             | 2.22                 | 2.5E-01                                       | BF108040.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C082  |
| 8039                   | 21122                 | 34642             | 0.51                 | 2.5E-01                                       | BE980712.1               | EST_HUMAN                     | 757a03.x1 Soares NSF_F8_gw_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:3525389 3'   |
| 8421                   | 21502                 | 35034             | 1.9                  | 2.5E-01                                       | BF038586.1               | EST_HUMAN                     | 601653391R2 NIH_MGC_68 Homo sapiens cDNA clone IMAGE:3826198 3'  |
| 8591                   | 21672                 | 35210             | 0.8                  | 2.5E-01                                       | P04482                   | SWISSPROT                     | 601459238F1 NIH_MGC_68 Homo sapiens cDNA clone IMAGE:3862809 5'  |
| 8837                   | 21916                 | 35454             | 4.07                 | 2.5E-01                                       | H53236.1                 | EST_HUMAN                     | E1B PROTEIN, SMALL T-ANTIGEN (E1B 19K)   |
| 9076                   | 22155                 | 35600             | 1.05                 | 2.5E-01                                       | M88828.1                 | NT                            | yq44f07.1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:202501 5'  |
| 9716                   | 22761                 | 36351             | 16.85                | 2.5E-01                                       | U89851.2                 | NT                            | Mouse testis-specific protein (TPX-1) gene, exon 10  |
| 9716                   | 22761                 | 36352             | 16.85                | 2.5E-01                                       | U89851.2                 | NT                            | Homo sapiens matrix metalloproteinase MMP Rasi-1 gene, promoter region   |
| 9772                   | 22768                 | 36339             | 2.44                 | 2.5E-01                                       | AF085164.1               | NT                            | Homo sapiens matrix metalloproteinase MMP Rasi-1 gene, promoter region   |
| 9772                   | 22768                 | 36340             | 2.44                 | 2.5E-01                                       | AF085164.1               | NT                            | Homo sapiens receptor-like kinase LRK10 gene, partial cds  |
| 10303                  | 23338                 | 36943             | 1.31                 | 2.5E-01                                       | AW581597.1               | EST_HUMAN                     | Homo sapiens receptor-like kinase LRK10 gene, partial cds  |
| 10560                  | 23685                 | 37163             | 0.51                 | 2.5E-01                                       | 11465652                 | NT                            | RC3-STO186-130100-01B-a07 ST0188 Homo sapiens cDNA   |
| 10763                  | 23768                 | 37416             | 1.4                  | 2.5E-01                                       | AW162246.1               | EST_HUMAN                     | Parityra purpurea chloroplast, complete genome   |
| 10767                  | 23800                 | 37422             | 1.61                 | 2.5E-01                                       | X59491.1                 | NT                            | cg40c10.x1 NC1 CGAP_UH Homo sapiens cDNA clone IMAGE:2630034 3' similar to contains Alu repetitive element; contains element MSR1 repetitive element;                          |
| 11332                  | 24395                 | 38043             | 2.06                 | 2.5E-01                                       | D50914.1                 | NT                            | Mouse L1M4 LINE DNA  |
| 12204                  | 25158                 | 38834             | 5.16                 | 2.5E-01                                       | AF200528.1               | NT                            | Human mRNA for KIAA0124 gene, partial cds  |
| 12233                  | 26167                 |                   | 8.12                 | 2.5E-01                                       | AL161541.2               | NT                            | Zea mays cellulose synthase-4 (Cesa-4) mRNA, complete cds  |
|                        |                       |                   |                      |   |                          |                               | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 41  |

Page 87 of 550  
Table 4  
Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 19024                  | 25674                 |                   | 1.22                 | 2.5E-01                                       | AF326363.1               | NT                            | Della brassica cytochrome oxidase subunit II (COII) gene, partial cds; mitochondrial gene for mitochondrial product   |
| 567                    | 13759                 | 26763             | 1.41                 | 2.4E-01                                       | AA930316.1               | EST_HUMAN                     | on70d04.s1 Soares_NFL_T_GBC S1 Homo sapiens cDNA clone IMAGE:1562023 3'   |
| 871                    | 14047                 | 27113             | 4.4                  | 2.4E-01                                       | BF576124.1               | EST_HUMAN                     | 602132442F1 NIH_MGC_81 Homo sapiens cDNA clone IMAGE:4271578 6'   |
| 1332                   | 14489                 | 27567             | 16.83                | 2.4E-01                                       | AJ289880.1               | NT                            | Homo sapiens KIAA0851 gene (partial), XTS gene and LZTFL1 gene  |
| 1332                   | 14489                 | 27558             | 16.83                | 2.4E-01                                       | AJ289880.1               | NT                            | Homo sapiens KIAA0851 gene (partial), XTS gene and LZTFL1 gene  |
| 1415                   | 14589                 | 27642             | 0.97                 | 2.4E-01                                       | Y17293.1                 | NT                            | Homo sapiens FLI-1 gene, partial  |
| 1898                   | 15041                 |                   | 20.78                | 2.4E-01                                       | AF267163.1               | NT                            | Mesembryanthemum crystallinum putative potassium channel protein Mktip mRNA, complete cds   |
| 1949                   | 15092                 | 28183             | 1.43                 | 2.4E-01                                       | AF251708.1               | NT                            | Zaocys dhimmedes fructose-1,6-bisphosphatase mRNA, complete cds   |
| 2091                   | 16231                 | 28353             | 1.64                 | 2.4E-01                                       | AF42958.1                | EST_HUMAN                     | TR:O60267 O60267 KIAA0512 PROTEIN.  |
| 2206                   | 15940                 | 28467             | 1.17                 | 2.4E-01                                       | AF111168.2               | NT                            | Homo sapiens serine palmitoyl transferase, subunit II gene, complete cds; and unknown genes   |
| 2237                   | 15370                 |                   | 1.25                 | 2.4E-01                                       | P45384                   | SWISSPROT                     | IMMUNOGLOBULIN A1 PROTEASE PRECURSOR (IGA1 PROTEASE)  |
| 2338                   | 15467                 | 28602             | 2.29                 | 2.4E-01                                       | AE000680.1               | NT                            | Aquifex acidicus section 12 of 109 of the complete genome   |
| 2602                   | 15728                 | 28845             | 3.13                 | 2.4E-01                                       | Z36634.1                 | NT                            | D. discoideum (Ax3-K) parA gene   |
| 2820                   | 16304                 | 29045             | 2.22                 | 2.4E-01                                       | X71783.1                 | NT                            | S. pombe swi6 gene  |
| 2846                   | 15930                 | 29069             | 6.27                 | 2.4E-01                                       | AF030164.1               | NT                            | Bovine adenovirus 3 complete genome   |
| 3202                   | 16377                 |                   | 3.03                 | 2.4E-01                                       | U72726.1                 | NT                            | Oryza longistaminata receptor kinase-like protein, family member D, and retrofitt (gag/pol) genes, complete cds   |
| 3217                   | 16391                 | 29402             | 1.51                 | 2.4E-01                                       | X74209.1                 | NT                            | H. sapiens AGT gene, PstI fragment of intron 4  |
| 3856                   | 17016                 | 30016             | 0.97                 | 2.4E-01                                       | AE000312.1               | NT                            | Escherichia coli K-12 MG1655 section 202 of 400 of the complete genome  |
| 4141                   | 17283                 |                   | 0.65                 | 2.4E-01                                       | D29980.1                 | NT                            | Rattus norvegicus mRNA for alpha8 crystallin-related protein, complete cds  |
| 5181                   | 18303                 | 31289             | 0.65                 | 2.4E-01                                       | AW078598.1               | EST_HUMAN                     | xb18a02.x1 NCI_CGAP_Kid13 Homo sapiens cDNA clone IMAGE:2576818 3'  |
| 5181                   | 18303                 | 31287             | 0.65                 | 2.4E-01                                       | AW078598.1               | EST_HUMAN                     | xb18a02.x1 NCI_CGAP_Kid13 Homo sapiens cDNA clone IMAGE:2576818 3'  |
|                        |                       |                   |                      |   |                          |                               | Bacillus firmus hypothetical 34.0 kDa protein, hypothetical 8.9 kDa protein, hypothetical 10.1 kDa protein, hypothetical 21.0 kDa protein, putative fibroblast sulfatase, hypothetical 16.1 kDa transcriptional regulator and hypothetical 18.2 kDa |
| 5334                   | 18447                 | 31415             | 1.89                 | 2.4E-01                                       | U88914.1                 | NT                            | Homo sapiens gene for TU12B1-TY, exon 13  |
| 5335                   | 18448                 | 31416             | 1.48                 | 2.4E-01                                       | AB032785.1               | NT                            | Homo sapiens gene for TU12B1-TY, exon 13  |
| 5335                   | 18448                 | 31417             | 1.48                 | 2.4E-01                                       | AB032785.1               | NT                            | Homo sapiens gene for TU12B1-TY, exon 13  |
| 5578                   | 18773                 | 31818             | 0.9                  | 2.4E-01                                       | AB025707.1               | EST_HUMAN                     | wc33405.x1 NCI_CGAP_Gas4 Homo sapiens cDNA clone IMAGE:2457120 3'   |
| 5578                   | 18773                 | 31819             | 0.9                  | 2.4E-01                                       | AB025707.1               | EST_HUMAN                     | wc33405.x1 NCI_CGAP_Gas4 Homo sapiens cDNA clone IMAGE:2457120 3'   |
| 5602                   | 18787                 | 31847             | 0.59                 | 2.4E-01                                       | D50871.1                 | NT                            | Glycine max mRNA for mitotic cyclin b1-type, complete cds   |
| 5772                   | 18904                 | 32266             | 12.86                | 2.4E-01                                       | AF091216.1               | NT                            | Mus musculus Wrm protein (Wrm) gene, complete cds   |
| 5772                   | 18904                 | 32267             | 12.86                | 2.4E-01                                       | AF091216.1               | NT                            | Mus musculus Wrm protein (Wrm) gene, complete cds   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 6800                   | 18880                 |                   | 0.7                  | 2.4E-01                                       | M83377.1                 | NT                            | Gallus gallus brain-derived neurotrophic factor (BDNF) gene, 5' end                           |
| 6010                   | 26816                 |                   | 0.97                 | 2.4E-01                                       | AJ133898.2               | NT                            | Branchiostoma floridae mRNA for calmodulin 2 (calM2 gene)                                     |
|                        |                       |                   |                      |   |                          |                               | 765404.x1 NCI CGAP B-16 Homo sapiens cDNA clone IMAGE:338503 3' similar to SW-SFR4_HUMAN      |
|                        |                       |                   |                      |   |                          |                               | Q08170 SPLICING FACTOR, ARGININE/SERINE-RICH 4; contains element TAR1 TAR1 repetitive element |
| 6016                   | 19200                 | 32517             | 2.54                 | 2.4E-01                                       | BF592338.1               | EST_HUMAN                     |   |
| 6106                   | 19286                 | 32620             | 2.47                 | 2.4E-01                                       | AF035548.1               | NT                            | Drosophila melanogaster p38a MAP kinase gene, complete cds                                    |
| 6215                   | 19390                 | 32738             | 2.49                 | 2.4E-01                                       | 7661801                  | NT                            | Homo sapiens HSPC142 protein (HSPC142), mRNA  |
| 6289                   | 19443                 | 32782             | 0.94                 | 2.4E-01                                       | AV733787.1               | EST_HUMAN                     | AV733787 cda Homo sapiens cDNA clone cdaADE11 5'  |
| 6516                   | 19681                 | 33051             | 0.87                 | 2.4E-01                                       | AA388672.1               | EST_HUMAN                     | z70c02.s1 Soares, testis. NHT Homo sapiens cDNA clone IMAGE:727683 3'                         |
|                        |                       |                   |                      |   |                          |                               | w682t11.x1 NCI CGAP_Pan1 Homo sapiens cDNA clone IMAGE:727683 3'                              |
| 6665                   | 19824                 | 33212             | 1.59                 | 2.4E-01                                       | A1698989.1               | EST_HUMAN                     | PROCOLLAGEN ALPHA 2(I) CHAIN PRECURSOR (HUMAN);   |
| 7498                   | 20573                 | 34046             | 7.79                 | 2.4E-01                                       | L43001.1                 | NT                            | Bos taurus guanylyl cyclase-activating protein 2 (guca2) mRNA, complete cds                   |
| 7902                   | 20954                 | 34461             | 0.69                 | 2.4E-01                                       | AF229944.1               | NT                            | Mus musculus DXImc48e protein (DXImc48e) mRNA, complete cds                                   |
| 8271                   | 21353                 | 34968             | 0.5                  | 2.4E-01                                       | X97262.1                 | NT                            | M.musculus pch gene and promoter  |
| 8271                   | 21353                 | 34969             | 0.5                  | 2.4E-01                                       | X97262.1                 | NT                            | M.musculus pch gene and promoter  |
| 8392                   | 21473                 | 34989             | 1.48                 | 2.4E-01                                       | AJ006397.1               | NT                            | Streptococcus pneumoniae r08 and h08 genes; two component system 08                           |
| 8392                   | 21473                 | 35000             | 1.48                 | 2.4E-01                                       | AJ006397.1               | NT                            | Streptococcus pneumoniae r08 and h08 genes; two component system 08                           |
| 8544                   | 21625                 | 35162             | 1.29                 | 2.4E-01                                       | AJ012585.1               | NT                            | Tetrahymena thermophila macronuclear gene encoding ribosomal protein L3, exons 1-2            |
| 8788                   | 21677                 | 35416             | 1.18                 | 2.4E-01                                       | BF242794.1               | EST_HUMAN                     | 601877679F1 NIH_MGC_55 Homo sapiens cDNA clone IMAGE:4106208 5'                               |
| 9332                   | 22408                 | 35961             | 0.58                 | 2.4E-01                                       | AL139077.2               | NT                            | Campylobacter jejuni NCTC11108 complete genome; segment 4/6                                   |
| 9332                   | 22408                 | 35962             | 0.58                 | 2.4E-01                                       | AL139077.2               | NT                            | Campylobacter jejuni NCTC11108 complete genome; segment 4/6                                   |
|                        |                       |                   |                      |   |                          |                               | wd43602.x1 Soares, NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2330908 3' similar to contains  |
| 9763                   | 22701                 | 36287             | 9.39                 | 2.4E-01                                       | A1693515.1               | EST_HUMAN                     | MER22.b1 TAR1 repetitive element;   |
| 9805                   | 22945                 | 36530             | 0.69                 | 2.4E-01                                       | AF220067.1               | NT                            | Drosophila melanogaster SKPB gene, complete cds   |
| 9805                   | 22945                 | 36531             | 0.69                 | 2.4E-01                                       | AF220067.1               | NT                            | Drosophila melanogaster SKPB gene, complete cds   |
| 10694                  | 23698                 | 37287             | 1.8                  | 2.4E-01                                       | Q03692                   | SWISSPROT                     | COLLAGEN ALPHA 1(X) CHAIN PRECURSOR   |
| 11006                  | 24085                 | 37722             | 2.15                 | 2.4E-01                                       | AL161494.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 6                                  |
| 11074                  | 24149                 | 37788             | 1.96                 | 2.4E-01                                       | AF030199.1               | NT                            | Mus musculus type 1 sigma receptor gene, complete cds   |
| 11447                  | 24508                 | 38174             | 1.8                  | 2.4E-01                                       | BE296917.1               | EST_HUMAN                     | 601178415F1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:3531843 5'                               |
| 11447                  | 24508                 | 38175             | 1.8                  | 2.4E-01                                       | BE296917.1               | EST_HUMAN                     | 601178415F1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:3531843 5'                               |
| 11478                  | 24537                 |                   | 8.04                 | 2.4E-01                                       | ZF1647.1                 | NT                            | P. asiatica mosaic virus genomic RNA  |
| 12169                  | 26127                 | 38827             | 1.75                 | 2.4E-01                                       | AF217491.1               | NT                            | Homo sapiens fragile 18D cido reductase (FOR) gene, exon 6                                    |
| 12289                  | 26932                 |                   | 1.35                 | 2.4E-01                                       | AF004213.1               | NT                            | Arabidopsis thaliana ethylene-insensitive3-like1 (EIL1) mRNA, complete cds                    |
| 12360                  | 26258                 |                   | 1.62                 | 2.4E-01                                       | AJ278191.1               | NT                            | Mus musculus mRNA for putative mc7 protein (mc7 gene)   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 12588                  | 25914                 |                   | 1.95                 | 2.4E-01                                       | V01607.1                 | NT                            | Gallus gallus gene coding for a-actin  |
| 12639                  | 26151                 |                   | 1.37                 | 2.4E-01                                       | BF228975.1               | EST_HUMAN                     | RC3-CT0413-100800-023-b06 CT0413 Homo sapiens cDNA   |
| 13072                  | 25701                 |                   | 1.4                  | 2.4E-01                                       | AJ238044.1               | NT                            | Homo sapiens mRNA for bradykinin B1 receptor (B1BKR gene)  |
| 13102                  | 25718                 |                   | 4.16                 | 2.4E-01                                       | AL163281.2               | NT                            | Homo sapiens chromosome 21 segment HS21C081  |
| 400                    | 13597                 | 26633             | 1.39                 | 2.3E-01                                       | S75898.1                 | NT                            | aromatase [Poaipitula guttata=zebra finches, ovary, mRNA, 3188 nt]   |
| 654                    | 13940                 |                   | 6.63                 | 2.3E-01                                       | U39713.1                 | NT                            | Mycoplasma genitalium section 35 of 51 of the complete genome  |
| 684                    | 13669                 | 26900             | 29.31                | 2.3E-01                                       | U87568.1                 | NT                            | Methanococcus jannaschii section 138 of 150 of the complete genome   |
| 657                    | 14130                 | 27188             | 3.67                 | 2.3E-01                                       | BE311893.1               | EST_HUMAN                     | 601142073F1 NIH_MGC_14 Homo sapiens cDNA clone IMAGE:3505818 5'  |
| 1634                   | 14786                 | 27872             | 1.11                 | 2.3E-01                                       | AJ246480.1               | NT                            | Brassica napus elg gene for S-locus glycoprotein, cultivar T2  |
| 1681                   | 14813                 | 27898             | 1.72                 | 2.3E-01                                       | Y10887.2                 | NT                            | Mus musculus cdh1 gene, exon 1, partial  |
| 2103                   | 16242                 |                   | 1.78                 | 2.3E-01                                       | AJ235353.1               | NT                            | Homo sapiens partial intron 3 of the wild type AF-4/FEL gene   |
| 2517                   | 15943                 | 28764             | 1.86                 | 2.3E-01                                       | BE297718.1               | EST_HUMAN                     | 601175562F1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:3531015 5'  |
| 2717                   | 15535                 | 28945             | 0.98                 | 2.3E-01                                       | M11319.1                 | NT                            | Human erythropoietin gene, complete cds  |
| 2885                   | 14573                 | 27646             | 1.5                  | 2.3E-01                                       | AB015033.1               | NT                            | Martellibilia agarivorans gxB gene for DNA gyrase subunit B, partial cds, strain:IFO 14957                   |
| 3028                   | 16204                 | 28227             | 1.08                 | 2.3E-01                                       | AA601379.1               | EST_HUMAN                     | no16d06.s1 NC1_CGAP_Pher1 Homo sapiens cDNA clone IMAGE:1100843 3' similar to contains Abu                   |
| 3153                   | 16328                 |                   | 7.06                 | 2.3E-01                                       | R21732.1                 | EST_HUMAN                     | repetitive element; contains element THIR repetitive element;  |
| 3456                   | 16623                 | 29844             | 1.32                 | 2.3E-01                                       | H69838.1                 | EST_HUMAN                     | y121b07.s1 Soares placenta Nb2HP Homo sapiens cDNA clone IMAGE:130357 3'                                     |
|                        |                       |                   |                      |   |                          |                               | y97h10.1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:213283 5'                             |
|                        |                       |                   |                      |   |                          |                               | GSTA5-glutathione S-transferase Yc2 subunit (5' region, intron 1) [rats, Morris hepatoma cell line, Genomic, |
| 3944                   | 17103                 | 30100             | 0.98                 | 2.3E-01                                       | S82821.1                 | NT                            | 2212 nt, segment 1 of 3]   |
| 4046                   | 17202                 |                   | 5.15                 | 2.3E-01                                       | 7662133                  | NT                            | Homo sapiens KIAA0450 gene product (KIAA0450), mRNA  |
| 4470                   | 17610                 | 30688             | 0.86                 | 2.3E-01                                       | R82252.1                 | EST_HUMAN                     | Y17101.1 Soares placenta Nb2HP Homo sapiens cDNA clone IMAGE:149017 5'                                       |
| 4520                   | 17659                 |                   | 1.91                 | 2.3E-01                                       | L78789.1                 | NT                            | Mus musculus renin (Ren-1c) gene, promoter region  |
| 4573                   | 17710                 | 30693             | 1.12                 | 2.3E-01                                       | D90899.1                 | NT                            | Synechocystis sp. POC8803 complete genome, 1/27, 1-133859  |
| 4811                   | 17748                 | 30728             | 2.78                 | 2.3E-01                                       | AF092535.1               | NT                            | Homo sapiens mitogen-activated protein kinase p38delta (PRKM13) mRNA, complete cds                           |
| 4878                   | 17811                 | 30800             | 5.65                 | 2.3E-01                                       | 5031884                  | NT                            | Homo sapiens nuclear transport factor 2 (placental protein 15) (PP15) mRNA                                   |
| 5159                   | 18281                 | 31246             | 0.87                 | 2.3E-01                                       | AB032400.1               | NT                            | Mus musculus tulip 1 mRNA, complete cds  |
| 5223                   | 18345                 |                   | 1.08                 | 2.3E-01                                       | M16994.1                 | NT                            | Human gamma-B-crystallin (gamma 1-2) and gamma-C-crystallin (gamma 2-1) genes, complete cds                  |
| 5260                   | 18379                 | 31345             | 0.63                 | 2.3E-01                                       | BF574804.1               | EST_HUMAN                     | 602132210F1 NIH_MGC_81 Homo sapiens cDNA clone IMAGE:4271547 5'  |
| 5419                   | 18620                 | 31596             | 2.47                 | 2.3E-01                                       | AB040845.1               | NT                            | Homo sapiens mRNA for KIAA1612 protein, partial cds  |
|                        |                       |                   |                      |   |                          |                               | 7630608.x1 NC1_CGAP_OY18 Homo sapiens cDNA clone IMAGE:3476868 3' similar to SW:GAG_SMSAV                    |
|                        |                       |                   |                      |   |                          |                               | P03330 GAG POLYPROTEIN [CONTAINS: CORE PROTEIN P15; INNER COAT PROTEIN P12; CORE                             |
| 5545                   | 18742                 | 31776             | 2.03                 | 2.3E-01                                       | BF058381.1               | EST_HUMAN                     | SHELL PROTEIN P30; NUCLEOPROTEIN P10];   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO. | Exon<br>SEQ ID<br>NO. | ORF SEQ<br>ID NO. | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 5647                   | 18941                 | 32122             | 5.26                 | 2.3E-01                                       | X96587.1                 | NT                            | C. familiaris rom1 gene  |
| 5768                   | 18998                 |                   | 0.99                 | 2.3E-01                                       | L39112.1                 | NT                            | Vitiforma cornuam unali subunit ribosomal RNA gene   |
| 5870                   | 19000                 | 32367             | 1.32                 | 2.3E-01                                       | S60371.1                 | NT                            | 23S rRNA [Lactococcus carnosum, Genomic, 2868 nt]  |
| 6062                   | 19244                 | 32560             | 1.98                 | 2.3E-01                                       | A1708840.1               | EST_HUMAN                     | as27e12.x1 Barsstead aorta HPLRB6 Homo sapiens cDNA clone IMAGE:2318446 3' similar to gb.X13238                          |
| 6062                   | 19244                 | 32570             | 1.98                 | 2.3E-01                                       | A1708840.1               | EST_HUMAN                     | CYTOKROME C OXIDASE POLYPEPTIDE VIC PRECURSOR (HUMAN);   |
| 6784                   | 19949                 | 33348             | 0.86                 | 2.3E-01                                       | AF198089.1               | NT                            | as27e12.x1 Barsstead aorta HPLRB6 Homo sapiens cDNA clone IMAGE:2318446 3' similar to gb.X13238                          |
| 7017                   | 20153                 | 33573             | 4.83                 | 2.3E-01                                       | A1718148.1               | EST_HUMAN                     | CYTOKROME C OXIDASE POLYPEPTIDE VIC PRECURSOR (HUMAN);   |
| 7280                   | 20343                 | 33796             | 0.86                 | 2.3E-01                                       | 862323.23                | NT                            | Oryctolagus cuniculus cytochrome oxidase subunit Via (cox1a2) mRNA, complete cds; nuclear gene for mitochondrial product |
| 7440                   | 20517                 | 33989             | 0.76                 | 2.3E-01                                       | AF000227.1               | NT                            | as4212.x1 Barsstead aorta HPLRB6 Homo sapiens cDNA clone IMAGE:2318887 3' similar to contains Alu repetitive element;    |
| 7573                   | 20646                 | 34123             | 2.54                 | 2.3E-01                                       | AF175388.1               | NT                            | Homo sapiens hypodermal protein FLJ20345 (FLJ20345), mRNA  |
| 7576                   | 20648                 | 34125             | 5.37                 | 2.3E-01                                       | AV1719681.1              | EST_HUMAN                     | Secale cereale omega secalin gene, complete cds  |
| 7576                   | 20648                 | 34126             | 5.37                 | 2.3E-01                                       | AV1719681.1              | EST_HUMAN                     | Glycine max resistance protein LM17 precursor RNA, partial cds   |
| 7784                   | 20840                 |                   | 4.28                 | 2.3E-01                                       | 6754779                  | NT                            | AV1719681 GLC Homo sapiens cDNA clone GLCDB308 5'  |
| 7789                   | 20845                 | 34338             | 1.58                 | 2.3E-01                                       | BE888071.1               | EST_HUMAN                     | AV1719681 GLC Homo sapiens cDNA clone GLCDB308 5'  |
| 7831                   | 20881                 |                   | 2.8                  | 2.3E-01                                       | N80883.1                 | EST_HUMAN                     | AV1719681 GLC Homo sapiens cDNA clone GLCDB308 5'  |
| 7968                   | 21018                 | 34530             | 0.71                 | 2.3E-01                                       | 11416821                 | NT                            | Mus musculus myosin XV (Myp15), mRNA   |
| 7968                   | 21018                 | 34531             | 0.71                 | 2.3E-01                                       | 11416821                 | NT                            | 601511573F1 NIH_MGC 71 Homo sapiens cDNA clone IMAGE:3912869 5'  |
| 8036                   | 21118                 | 34637             | 0.52                 | 2.3E-01                                       | AL161558.2               | NT                            | zai12e08.r1 Soares fetal liver spleen 1NFS Homo sapiens cDNA clone IMAGE:282353 5'                                       |
| 8183                   | 21265                 | 34788             | 1.73                 | 2.3E-01                                       | M68831.1                 | NT                            | Homo sapiens protocadherin alpha cluster (LOC83390), mRNA  |
| 8690                   | 21770                 | 35300             | 0.62                 | 2.3E-01                                       | U57999.1                 | NT                            | Homo sapiens protocadherin alpha cluster (LOC83390), mRNA  |
| 8972                   | 22061                 | 35594             | 0.58                 | 2.3E-01                                       | AW090541.1               | EST_HUMAN                     | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 58  |
| 9089                   | 22168                 | 35715             | 0.52                 | 2.3E-01                                       | AW094460.1               | EST_HUMAN                     | Oxytricha nova macronuclear telomere-binding protein alpha subunit (tel-alpha alanine version) gene, complete cds        |
| 9341                   | 22417                 | 35970             | 0.84                 | 2.3E-01                                       | AA372184.1               | EST_HUMAN                     | Mus musculus prosaparin (psapSGP-1) gene, complete cds   |
| 9341                   | 22417                 | 35971             | 0.84                 | 2.3E-01                                       | AA372184.1               | EST_HUMAN                     | xc50e08.x1 NCI_OGAP_Bim35 Homo sapiens cDNA clone IMAGE:2591554 3'   |
| 9780                   | 22820                 | 36398             | 0.5                  | 2.3E-01                                       | 6878318                  | NT                            | EST176533 MAGE resequences, MAGH Homo sapiens cDNA   |
| 9830                   | 22970                 | 36559             | 0.53                 | 2.3E-01                                       | BE277880.1               | EST_HUMAN                     | EST84061 Rhabdomyosarcoma Homo sapiens cDNA 5' and similar to DnaJ homolog (GB:X63368)                                   |
| 9885                   | 23024                 | 36616             | 0.81                 | 2.3E-01                                       | AW084460.1               | EST_HUMAN                     | EST184061 Rhabdomyosarcoma Homo sapiens cDNA 5' and similar to DnaJ homolog (GB:X63368)                                  |
| 10037                  | 23075                 | 36675             | 1.57                 | 2.3E-01                                       | X52124.1                 | NT                            | Mus musculus phosphatidylinositol 3-kinase catalytic subunit delta (Pik3od), mRNA  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Description   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 10071                  | 23109                 | 38712             | 0.83                 | 2.3E-01                                       | AW364633.1               | EST_HUMAN                     | PM2-DT0036-281289-001-104 DT0036 Homo sapiens cDNA  |
| 10198                  | 23176                 | 38773             | 2.82                 | 2.3E-01                                       | BE173060.1               | EST_HUMAN                     | MRO-HT0659-240400-014-g11 HT0559 Homo sapiens cDNA  |
| 10197                  | 23234                 | 38823             | 2.48                 | 2.3E-01                                       | AJ293281.1               | NT                            | Rhizobium leguminosarum partial genomic DNA for ectopolysaccharide biosynthesis genes                 |
| 10658                  | 23692                 | 37302             | 0.94                 | 2.3E-01                                       | AF201929.1               | NT                            | Murina hepatitis virus strain 2, complete genome  |
| 10671                  | 23705                 |                   | 5.88                 | 2.3E-01                                       | BF133577.1               | EST_HUMAN                     | 601846165R2 NIH_MGC_60 Homo sapiens cDNA clone IMAGE:4102082 3'                                       |
| 11465                  | 24524                 | 38195             | 2.24                 | 2.3E-01                                       | AJ250189.1               | NT                            | Mus musculus partial mRNA for muscle protein 534 (mg534 gene)   |
| 11465                  | 24524                 | 38196             | 2.24                 | 2.3E-01                                       | AJ250189.1               | NT                            | Mus musculus partial mRNA for muscle protein 534 (mg534 gene)   |
| 11633                  | 24713                 | 38404             | 2.43                 | 2.3E-01                                       | AE002167.2               | NT                            | Chlamydia pneumoniae AR39, section 4 of 94 of the complete genome                                     |
| 12098                  | 25079                 |                   | 1.36                 | 2.3E-01                                       | AV709736.1               | EST_HUMAN                     | AV709736 ADC Homo sapiens cDNA clone ADCAGH101 5'   |
| 12281                  | 25210                 |                   | 3.07                 | 2.3E-01                                       | U45428.1                 | NT                            | Borrelia burgdorferi 2.9-6 locus, ORF-A-D genes, complete cds and REP+ gene, partial cds              |
| 12370                  | 25264                 |                   | 48.78                | 2.3E-01                                       | T27231.1                 | EST_HUMAN                     | HCOEST44 HT2046 Homo sapiens cDNA clone HCOE44 5'   |
| 12395                  | 25373                 |                   | 1.23                 | 2.3E-01                                       | AA089619.1               | EST_HUMAN                     | chr11424.seq.F Human fetal heart, Lambda ZAP Express Homo sapiens cDNA 5'                             |
| 12464                  | 26088                 |                   |                      |   |                          |                               | x21d07.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2813773 3' similar to TR:Q9Z175           |
| 12500                  | 26143                 | 31657             | 4.08                 | 2.3E-01                                       | AW303623.1               | EST_HUMAN                     | Q9Z175 LYSYL OXIDASE-RELATED PROTEIN 2; contains PTR5.b2 TAR1 repetitive element;                     |
| 12553                  | 25376                 | 31652             | 7.05                 | 2.3E-01                                       | BE882484.1               | EST_HUMAN                     | 601607202F1 NIH_MGC_71 Homo sapiens cDNA clone IMAGE:3908689 5'                                       |
| 12612                  | 25411                 |                   | 1.77                 | 2.3E-01                                       | BF663319.1               | EST_HUMAN                     | 602144459F1 NIH_MGC_48 Homo sapiens cDNA clone IMAGE:4297719 5'                                       |
| 12708                  | 25470                 |                   | 2.74                 | 2.3E-01                                       | AJ006519.1               | NT                            | Rattus norvegicus mRNA for acid gated ion channel   |
| 12712                  | 25411                 |                   | 1.22                 | 2.3E-01                                       | U46845.1                 | NT                            | Plautodes waltii distal-less like protein PwDlx-3 (PwDlx-3) mRNA, complete cds                        |
| 13008                  | 25686                 |                   | 1.84                 | 2.3E-01                                       | AJ006519.1               | NT                            | Rattus norvegicus mRNA for acid gated ion channel   |
| 82                     | 13327                 |                   | 2.36                 | 2.3E-01                                       | BF475811.1               | EST_HUMAN                     | nec39h12.x1 Lupski_sclafio_nerve Homo sapiens cDNA clone IMAGE:3395650 3' similar to contains element |
| 1698                   | 14749                 | 26355             | 1.13                 | 2.2E-01                                       | AJ052180.1               | EST_HUMAN                     | MEF38 repetitive element;   |
| 2155                   | 15281                 | 28418             | 2.74                 | 2.2E-01                                       | AF187850.1               | EST_HUMAN                     | alpha10.x1 Soares_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:1675280 3' similar to     |
| 2476                   | 15603                 | 28728             | 2.19                 | 2.2E-01                                       | M34840.1                 | NT                            | TR-Q13040 Q13040 ATP-BINDING CASSETTE PROTEIN;  |
| 2654                   | 15777                 | 28890             | 7.16                 | 2.2E-01                                       | BF677838.1               | EST_HUMAN                     | Homo sapiens PPAR delta gene, promoter region   |
| 2654                   | 15777                 | 28891             | 1.63                 | 2.2E-01                                       | BE18258.1                | EST_HUMAN                     | Fresh-water sponge Emf1 alpha collagen (COLF1) gene   |
| 2946                   | 16123                 | 29136             | 1.63                 | 2.2E-01                                       | BE18258.1                | EST_HUMAN                     | 602065608F1 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:4249889 5'                                       |
| 2946                   | 16123                 | 29137             | 4.94                 | 2.2E-01                                       | BE156625.1               | EST_HUMAN                     | 601462628F1 NIH_MGC_67 Homo sapiens cDNA clone IMAGE:3866180 5'                                       |
|                        |                       |                   | 4.94                 | 2.2E-01                                       | BE156625.1               | EST_HUMAN                     | 601462628F1 NIH_MGC_67 Homo sapiens cDNA clone IMAGE:3866180 5'                                       |
|                        |                       |                   | 4.94                 | 2.2E-01                                       | BE156625.1               | EST_HUMAN                     | PM2-HT0353-281289-003-a12 HT0353 Homo sapiens cDNA  |
|                        |                       |                   | 4.94                 | 2.2E-01                                       | BE156625.1               | EST_HUMAN                     | PM2-HT0353-281289-003-a12 HT0353 Homo sapiens cDNA  |
| 2987                   | 16163                 |                   | 2.07                 | 2.2E-01                                       | AF020503.1               | NT                            | Homo sapiens FRA3B common fragile region, diadenosine triphosphate hydrolase (FHT) gene, exon 5       |
| 3479                   | 16846                 |                   | 2.35                 | 2.2E-01                                       | AL161562.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 62   |

Page 92 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 3848                   | 17008                 | 30009             | 0.62                 | 2.2E-01                                       | AL163285.2               | NT                            | Homo sapiens chromosome 21 segment HS21C085  |
| 4211                   | 17380                 | 30349             | 0.69                 | 2.2E-01                                       | AF213391.1               | NT                            | Mus musculus ATP-binding cassette protein (Abcb8) mRNA, partial cds  |
| 4242                   | 17388                 |                   | 0.6                  | 2.2E-01                                       | U08174.1                 | NT                            | Mus musculus breast/ovarian cancer susceptibility protein (BRCA1) mRNA, complete cds   |
| 4328                   | 17471                 |                   | 1.07                 | 2.2E-01                                       | AF118102.1               | NT                            | Drosophila melanogaster UNC-119 (unc-119) gene, complete cds   |
| 4335                   | 17478                 | 30480             | 0.62                 | 2.2E-01                                       | AF155142.1               | NT                            | Mus musculus mixed lineage kinase 3 (Mlk3) and two pore domain K+ channel subunit (Kcnk6) genes, complete cds  |
| 4379                   | 17522                 | 30502             | 2.74                 | 2.2E-01                                       | AF117340.1               | NT                            | Mus musculus MAP kinase kinase kinase 1 (Mek1) mRNA, complete cds  |
| 4379                   | 17622                 | 30503             | 2.74                 | 2.2E-01                                       | AF117340.1               | NT                            | Mus musculus MAP kinase kinase kinase 1 (Mek1) mRNA, complete cds  |
| 4475                   | 17615                 | 30595             | 1.07                 | 2.2E-01                                       | U01307.1                 | NT                            | Human scRNA (BC200 beta) pseudogene  |
| 4475                   | 17615                 | 30596             | 1.07                 | 2.2E-01                                       | U01307.1                 | NT                            | Human scRNA (BC200 beta) pseudogene  |
| 4947                   | 18077                 |                   | 1.08                 | 2.2E-01                                       | D50804.1                 | NT                            | Human beta-cytoplasmic actin (ACTBP9) pseudogene   |
| 4952                   | 18082                 | 31058             | 2.2                  | 2.2E-01                                       | AA211216.1               | EST_HUMAN                     | zfp87c05.1 Stratagene HNT neuron (8837233) Homo sapiens cDNA clone IMAGE:648968 5'   |
| 5150                   | 18278                 |                   | 1.57                 | 2.2E-01                                       | L13289.1                 | NT                            | Mus musculus vimentin gene, exon 3   |
| 5226                   | 18348                 | 31319             | 1.34                 | 2.2E-01                                       | BE141035.1               | EST_HUMAN                     | MF0-HIT0067-201089-002-c10 HIT0067 Homo sapiens cDNA   |
| 5863                   | 19053                 | 32360             | 1.89                 | 2.2E-01                                       | 5803002                  | NT                            | Homo sapiens diaphanous (Drosophila, homolog) 2 (DIAPH2), transcript variant 156, mRNA   |
| 5874                   | 19084                 |                   | 3.75                 | 2.2E-01                                       | D64000.1                 | NT                            | Synachocystis sp. PCC8803 complete genome, 1927, 23927/29-2538899  |
| 6122                   | 19301                 | 32840             | 0.78                 | 2.2E-01                                       | U67087.1                 | NT                            | Gallus gallus T-box containing protein (Ch-Tbx1) mRNA, complete cds  |
| 6122                   | 19301                 | 32841             | 0.78                 | 2.2E-01                                       | U67087.1                 | NT                            | Gallus gallus T-box containing protein (Ch-Tbx1) mRNA, complete cds  |
| 6845                   | 19898                 | 33405             | 0.77                 | 2.2E-01                                       | AB038490.1               | NT                            | Homo sapiens gene for fukutin, complete cds  |
| 7166                   | 20290                 | 33742             | 10.63                | 2.2E-01                                       | AV756238.1               | EST_HUMAN                     | AV756238 BM Homo sapiens cDNA clone BMFAHC06 5'  |
| 7279                   | 20362                 | 33815             | 1.61                 | 2.2E-01                                       | AF082738.1               | NT                            | Streptococcus pyogenes phosphoglycerate synthase (pgsa) and ABC transporter ATP-binding protein (stpA) genes, complete cds; and unknown genes                      |
| 7279                   | 20362                 | 33818             | 1.61                 | 2.2E-01                                       | AF082738.1               | NT                            | Streptococcus pyogenes phosphoglycerate synthase (pgsa) and ABC transporter ATP-binding protein (stpA) genes, complete cds; and unknown genes                      |
| 7442                   | 20519                 | 33991             | 2.36                 | 2.2E-01                                       | M24138.1                 | NT                            | Human glycophorin B gene, exon 4   |
| 7442                   | 20519                 | 33992             | 2.36                 | 2.2E-01                                       | M24138.1                 | NT                            | Human glycophorin B gene, exon 4   |
| 7655                   | 20723                 | 34168             | 0.62                 | 2.2E-01                                       | AE000034.2               | NT                            | Mycoplasma pneumoniae M129 section 45 of 63 of the complete genome   |
| 7678                   | 20830                 | 34436             | 0.88                 | 2.2E-01                                       | AF287987.1               | NT                            | Homo sapiens homeobox B7 (HOXB7) gene, partial cds; and homeobox B8 (HOXB8), homeobox B5 (HOXB5), homeobox B4 (HOXB4), and homeobox B3 (HOXB3) genes, complete cds |
| 7903                   | 20957                 | 34463             | 0.71                 | 2.2E-01                                       | AB024553.1               | NT                            | Bacillus halodurans DNA, complete and partial cds, strain C-125  |
| 8210                   | 21292                 |                   | 2.45                 | 2.2E-01                                       | AF155143.1               | NT                            | Mus musculus mm23-M1 gene, promoter region   |
| 8280                   | 21362                 | 34881             | 2.68                 | 2.2E-01                                       | Z49833.1                 | NT                            | E.coli espA and sepB genes   |
| 8748                   | 21827                 | 35383             | 0.61                 | 2.2E-01                                       | AJ132918.1               | NT                            | Pan troglodytes MeCP2 gene 3'UTR   |
| 9083                   | 22162                 | 35705             | 0.52                 | 2.2E-01                                       | L23312.1                 | NT                            | Mouse HD protein mRNA, complete cds  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 8083                   | 22162                 | 35706             | 0.52                 | 2.2E-01                                       | L28312.1                 | NT                            | Mouse HD protein mRNA, complete cds   |
| 8087                   | 22176                 | 35720             | 4.58                 | 2.2E-01                                       | AE001713.1               | NT                            | Thermoboga maritima section 25 of 136 of the complete genome  |
| 9117                   | 22196                 | 35740             | 0.48                 | 2.2E-01                                       | U03984.1                 | NT                            | Mus musculus ICR/Swiss glyceraledehyde 3-phosphate dehydrogenase (Gapd-S) gene, complete cds  |
| 9224                   | 22302                 |                   | 2.88                 | 2.2E-01                                       | AW855030.1               | EST_HUMAN                     | PM3-CT0263-241288-009-b07 CT0263 Homo sapiens cDNA  |
| 9315                   | 22381                 | 35942             | 1.98                 | 2.2E-01                                       | 8383247                  | NT                            | Mus musculus deformed epidermal autoregulatory factor 1 (Droscophila) (Deaf1), mRNA   |
| 9399                   | 22473                 | 36039             | 1.13                 | 2.2E-01                                       | BF376354.1               | EST_HUMAN                     | MRI-TN0045-110600-008-c02 TN0045 Homo sapiens cDNA  |
| 9489                   | 22546                 | 36109             | 1.42                 | 2.2E-01                                       | W02868.1                 | EST_HUMAN                     | z0408.t1 Soares melanocyte 2N1H1M Homo sapiens cDNA clone IMAGE:291591 5'   |
| 9507                   | 22773                 | 36345             | 15.08                | 2.2E-01                                       | P48634                   | SWISSPROT                     | LARGE PROLINE-RICH PROTEIN BAT2 (HLA-B-ASSOCIATED TRANSCRIPT 2)   |
| 9552                   | 22817                 | 36187             | 0.76                 | 2.2E-01                                       | AJ009839.1               | NT                            | Xenopus laevis mRNA for kinesin-like protein 3 (xklp3)  |
| 9563                   | 22705                 | 36271             | 1.05                 | 2.2E-01                                       | 7657428                  | NT                            | Mus musculus osteoblast specific factor 2 (OSF-2), mRNA   |
| 9578                   | 22718                 | 36286             | 4.29                 | 2.2E-01                                       | M89843.1                 | NT                            | Brachydanio rerio ependymin beta and gamma chains (Epd) gene, complete cds  |
| 9820                   | 22860                 | 36441             | 0.65                 | 2.2E-01                                       | Q80980                   | SWISSPROT                     | CYCLIC NUCLEOTIDE GATED CHANNEL, ROD PHOTORECEPTOR, ALPHA SUBUNIT (CNG CHANNEL 3) (CNG-3) (CNG3)  |
| 10020                  | 23058                 | 36654             | 3.84                 | 2.2E-01                                       | AF197941.1               | NT                            | Furaria hyemalis chloroplast-localized small heat shock protein (GP-HSP21) mRNA, complete cds;  |
| 10159                  | 23198                 | 36792             | 1.63                 | 2.2E-01                                       | BF206507.1               | EST_HUMAN                     | nuclear gene for chloroplast product  |
| 10380                  | 23415                 | 37024             | 1.11                 | 2.2E-01                                       | 9825671                  | NT                            | 601B69724F1 NIH_MGC_19 Homo sapiens cDNA clone IMAGE:4100189 5'   |
| 10540                  | 23575                 | 37182             | 0.65                 | 2.2E-01                                       | T59472.1                 | EST_HUMAN                     | Human herpesvirus 5, complete genome  |
| 10540                  | 23575                 | 37183             | 0.65                 | 2.2E-01                                       | T59472.1                 | EST_HUMAN                     | y683408.t1 Stratigene ovary (8837217) Homo sapiens cDNA clone IMAGE:76855 5'  |
|                        |                       |                   |                      |   |                          |                               | y683408.t1 Stratigene ovary (8837217) Homo sapiens cDNA clone IMAGE:76855 5'  |
|                        |                       |                   |                      |   |                          |                               | Pseudomonas aeruginosa quinoprotein ethanol dehydrogenase (eadA) gene, partial cds; cytochrome c850 precursor (eadB), NAD+ dependent acetaldehyde dehydrogenase (eadC), and pyrroloquinone synthase A (pqoA) genes, complete cds; and pyrroloquin>            |
| 10580                  | 23615                 | 37220             | 0.6                  | 2.2E-01                                       | AF068264.1               | NT                            | Mus musculus PHR1 (Phr1) gene, partial cds  |
| 10659                  | 23693                 |                   | 0.79                 | 2.2E-01                                       | AF071001.1               | NT                            | Helicobacter pylori, strain J99 section 123 of 132 of the complete genome   |
| 10707                  | 23740                 | 37344             | 0.57                 | 2.2E-01                                       | AE001562.1               | NT                            | Helicobacter pylori, strain J99 section 123 of 132 of the complete genome   |
| 10707                  | 23740                 | 37345             | 0.57                 | 2.2E-01                                       | AE001562.1               | NT                            | Helicobacter pylori, strain J99 section 123 of 132 of the complete genome   |
| 10853                  | 23896                 | 37605             | 0.48                 | 2.2E-01                                       | AF049720.1               | NT                            | Homo sapiens neuronal nitric oxide synthase (NOS1) gene, alternative exons 11 and A3  |
| 11389                  | 24450                 | 38111             | 1.65                 | 2.2E-01                                       | AF257772.1               | NT                            | Homo sapiens RNA binding protein MCG10 gene, complete cds, alternatively spliced  |
| 11707                  | 24704                 | 38398             | 5.09                 | 2.2E-01                                       | X01918.1                 | NT                            | Drosophila 68C glue gene cluster  |
| 11748                  | 23934                 | 37560             | 3.7                  | 2.2E-01                                       | 7706215                  | NT                            | Homo sapiens H-2K binding factor-2 (LOC51680), mRNA   |
| 12207                  | 25181                 |                   | 1.33                 | 2.2E-01                                       | BE870959.1               | EST_HUMAN                     | 601446867F1 NIH_MGC_95 Homo sapiens cDNA clone IMAGE:3950670 5'   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens chromosome Xq28 melanoma antigen family A2a (MAGEA2A), melanoma antigen family A12 (MAGEA12), melanoma antigen family A2b (MAGEA2B), melanoma antigen family A3 (MAGEA3), calretinin (CALT), NAD(P)H dehydrogenase-like protein (NSDHL), and LIP |
| 12319                  | 26156                 |                   | 1.96                 | 2.2E-01                                       | U83671.2                 | NT                            |   |



Page 94 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>-BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|--|--------------------------|-------------------------------|---|
| 12407                  | 25288                 |                   | 3.24                 | 2.2E-01  | AF188843.1               | NT                            | Vitis vinifera cultivar Pinot Noir plasma membrane aquaporin (PIP1a) mRNA, complete cds                             |
| 12518                  | 18492                 | 31531             | 1.86                 | 2.2E-01  | AW361098.1               | EST_HUMAN                     | RC1-CT0249-141189-021-g04 CT0249 Homo sapiens cDNA  |
| 12519                  | 25353                 |                   | 1.47                 | 2.2E-01  | AW661822.1               | EST_HUMAN                     | H17502.s1 NCL_CGAP_GJ11 Homo sapiens cDNA clone IMAGE:2972523 3'  |
| 13115                  | 26148                 |                   | 3.08                 | 2.2E-01  | AV694801.1               | EST_HUMAN                     | AV694801 GKG Homo sapiens cDNA clone GKCAI-1502 5'  |
| 883                    | 14165                 | 27228             | 1.88                 | 2.1E-01  | AA569289.1               | EST_HUMAN                     | mt31et1.s1 NCL_CGAP_Lp2 Homo sapiens cDNA clone IMAGE:1061804   |
| 988                    | 14167                 | 27228             | 0.72                 | 2.1E-01  | AL161604.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 16   |
| 1148                   | 14312                 |                   | 2.43                 | 2.1E-01  | AE002314.2               | NT                            | Chlamydia muridarum, section 45 of 85 of the complete genome  |
| 1225                   | 14385                 | 27446             | 1.45                 | 2.1E-01  | 6754299                  | NT                            | Mus musculus interferon (alpha and beta) receptor 2 (fmar2), mRNA   |
| 1225                   | 14385                 | 27447             | 1.45                 | 2.1E-01  | 6754299                  | NT                            | Mus musculus interferon (alpha and beta) receptor 2 (fmar2), mRNA   |
| 1540                   | 14682                 | 27771             | 4.29                 | 2.1E-01  | AJ249895.1               | NT                            | Mus musculus mas proto-oncogene and lgt2r gene for insulin-like growth factor type 2 and L41ps and Au76 pseudogenes |
| 1983                   | 15106                 | 28206             | 2.15                 | 2.1E-01  | AA908824.1               | EST_HUMAN                     | cd73602.s1 NCL_CGAP_GC4 Homo sapiens cDNA clone IMAGE:1518610 3' similar to gb:K02765                               |
| 2224                   | 15358                 | 28488             | 3.55                 | 2.1E-01  | BF68073.1                | EST_HUMAN                     | COMPLEMENT C3-PRECURSOR (HUMAN);  |
| 2891                   | 16167                 | 29183             | 2.52                 | 2.1E-01  | 6912445                  | NT                            | 602083128F1 NIH_MGC 81 Homo sapiens cDNA clone IMAGE:4247603 5'   |
| 3533                   | 16698                 | 29709             | 6.1                  | 2.1E-01  | AA639482.1               | EST_HUMAN                     | Homo sapiens potassium voltage-gated channel, subfamily H (eag-related), member 4 (KCNH4), mRNA                     |
| 3908                   | 17057                 |                   | 5.61                 | 2.1E-01  | 9838361                  | NT                            | nc90b10.s1 NCL_CGAP_C09 Homo sapiens cDNA clone IMAGE:1166679 3'  |
| 4125                   | 17279                 |                   | 0.67                 | 2.1E-01  | AE001793.1               | NT                            | Beta vulgaris mitochondrion, complete genome  |
| 4165                   | 17315                 | 30310             | 1.57                 | 2.1E-01  | P11675                   | SWISSPROT                     | Thermoboga maritima section 105 of 193 of the complete genome   |
| 4465                   | 17635                 | 30311             | 1.57                 | 2.1E-01  | P11675                   | SWISSPROT                     | IMMEDIATE-EARLY PROTEIN E180  |
| 4699                   | 17834                 | 30819             | 1.82                 | 2.1E-01  | AB033041.1               | NT                            | IMMEDIATE-EARLY PROTEIN E180  |
| 4767                   | 17892                 | 30871             | 0.93                 | 2.1E-01  | AB010273.1               | NT                            | Homo sapiens mRNA for KIAA1215 protein, partial cds   |
| 5138                   | 18261                 | 31228             | 0.7                  | 2.1E-01  | XG3161.1                 | NT                            | Homo sapiens pap47 gene, complete cds   |
| 5416                   | 18618                 | 31562             | 6.31                 | 2.1E-01  | D13567.1                 | NT                            | P. falciparum mRNA for small GTPase rab11   |
| 7027                   | 20169                 | 33595             | 1.05                 | 2.1E-01  | BF672695.1               | EST_HUMAN                     | Lampetra japonica mRNA for alpha-2-macroglobulin, complete cds  |
| 7038                   | 20091                 | 33508             | 1.8                  | 2.1E-01  | AJ223392.1               | NT                            | 602152001F1 NIH_MGC 81 Homo sapiens cDNA clone IMAGE:4263001 5'   |
| 7564                   | 20636                 | 34111             | 0.77                 | 2.1E-01  | U04642.1                 | NT                            | Dodo fragilis mitochondrial 16S rRNA gene, partial  |
| 7584                   | 20638                 | 34112             | 0.77                 | 2.1E-01  | Q01859                   | SWISSPROT                     | Human olfactory receptor (OR17-2) gene, partial cds   |
| 7576                   | 20647                 |                   | 1.88                 | 2.1E-01  | Q01858                   | SWISSPROT                     | VOLTAGE-GATED POTASSIUM CHANNEL PROTEIN KV3.3 (KSHIID)  |
| 7883                   | 20835                 | 34441             | 1.54                 | 2.1E-01  | AE000972.1               | NT                            | VOLTAGE-GATED POTASSIUM CHANNEL PROTEIN KV3.3 (KSHIID)  |
| 7930                   | 20980                 | 34488             | 1.38                 | 2.1E-01  | AF000949.1               | NT                            | Archaeoglobus fulgidus section 135 of 172 of the complete genome  |
|                        |                       |                   |                      |  | AF008887.1               | NT                            | Canis familiaris keratin (KR19) gene, complete cds  |
|                        |                       |                   |                      |  | AF008887.1               | NT                            | Glycine max malate dehydrogenase (Mdh-2) gene, nuclear gene encoding mitochondrial protein, partial cds             |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 7630                   | 20980                 | 34489             | 1.38                 | 2.1E-01                                       | AF068687.1               | NT                            | Glycine max melate dehydrogenase (Mdh-2) gene, nuclear gene encoding mitochondrial protein, partial cds  |
| 8263                   | 21345                 |                   | 1.21                 | 2.1E-01                                       | 7305030                  | NT                            | Mus musculus erythrocyte protein band 4.1-like 3 (Epb4.1B), mRNA   |
|                        |                       |                   |                      |   |                          |                               | Haemophilus influenzae hmcD, putative haemochromin processing protein (hmcC), putative ABC transporter (hmcB), putative haemochromin structural protein (hmcA), and haemochromin immunity protein (hmcI) genes, complete cds |
| 8700                   | 21780                 | 36313             | 4.76                 | 2.1E-01                                       | U68398.1                 | NT                            | DKFZp434H0614_r1 434 (synonym: hhes3) Homo sapiens cDNA clone DKFZp434H0614 5'   |
| 8897                   | 22076                 | 35615             | 0.91                 | 2.1E-01                                       | AL040537.1               | EST_HUMAN                     | DKFZp434H0614_r1 434 (synonym: hhes3) Homo sapiens cDNA clone DKFZp434H0614 5'   |
| 8897                   | 22076                 | 35616             | 0.91                 | 2.1E-01                                       | AL040537.1               | EST_HUMAN                     | Homo sapiens AFOL gene, exon 9   |
| 9159                   | 22237                 |                   | 0.5                  | 2.1E-01                                       | AB022624.1               | NT                            | S. cerevisiae chromosome II reading frame ORF YBL025W  |
| 9237                   | 22314                 | 35656             | 6.7                  | 2.1E-01                                       | Z36786.1                 | NT                            | Y11e10.r1 Soares melanocyte 2N18HM Homo sapiens cDNA clone IMAGE:270954 5'   |
| 9704                   | 22763                 | 36323             | 0.89                 | 2.1E-01                                       | N42536.1                 | EST_HUMAN                     | Y11e10.r1 Soares melanocyte 2N18HM Homo sapiens cDNA clone IMAGE:270954 5'   |
| 9704                   | 22763                 | 36324             | 0.86                 | 2.1E-01                                       | N42536.1                 | EST_HUMAN                     | A.thaliana mRNA for AIRBP1b protein  |
| 9713                   | 22778                 | 36348             | 2.72                 | 2.1E-01                                       | X07378.1                 | NT                            | Homo sapiens p53R2 gene for ribonucleotide reductase, exon 9   |
| 9817                   | 22857                 | 36437             | 1.02                 | 2.1E-01                                       | AB036529.1               | NT                            | Beta vulgaris mRNA for elongation factor 1-beta  |
| 10535                  | 23570                 | 37178             | 1.31                 | 2.1E-01                                       | Z37087.1                 | NT                            | DIACYLGLYCEROL KINASE, DELTA (DIGLYCERIDE KINASE) (DGK-DELTA) (DAG KINASE DELTA)   |
| 10569                  | 23604                 | 37209             | 1.97                 | 2.1E-01                                       | P62824                   | SWISSPROT                     | (80 KD DIACYLGLYCEROL KINASE)  |
| 10578                  | 23611                 | 37216             | 0.72                 | 2.1E-01                                       | BF574254.1               | EST_HUMAN                     | 602131427F1 NIH_MGC_81 Homo sapiens cDNA clone IMAGE:4270831 5'  |
| 11778                  | 24768                 |                   | 1.34                 | 2.1E-01                                       | A1141875.1               | EST_HUMAN                     | q66308.x1 Soares fetal heart NbHH19W Homo sapiens cDNA clone IMAGE:1881761 3'  |
| 11882                  | 24850                 |                   | 1.88                 | 2.1E-01                                       | 11036947                 | NT                            | Homo sapiens pancreatic polypeptide 2 (PPY2), mRNA   |
| 11879                  | 24867                 | 38565             | 2.6                  | 2.1E-01                                       | BE180422.1               | EST_HUMAN                     | Homo sapiens fragile 16D oxidoreductase (FOR) gene, exons 8, 9, and partial cds  |
| 12888                  | 25459                 |                   | 1.92                 | 2.1E-01                                       | AF217490.1               | NT                            | 601440712F1 NIH_MGC_72 Homo sapiens cDNA clone IMAGE:3915675 5'  |
| 12894                  | 25446                 |                   | 1.39                 | 2.1E-01                                       | BE622149.1               | EST_HUMAN                     | Homo sapiens fragile 16D oxidoreductase (FOR) gene, exons 8, 9, and partial cds  |
| 13158                  | 25763                 | 31828             | 1.19                 | 2.1E-01                                       | AJ276505.1               | NT                            | Mus musculus genomic fragment, 279 Kb, chromosome 7  |
| 205                    | 13428                 | 28460             | 1.92                 | 2.0E-01                                       | AB017437.1               | NT                            | Gallus gallus mRNA for avian, complete cds   |
| 547                    | 13740                 |                   | 1.97                 | 2.0E-01                                       | 7705601                  | NT                            | Homo sapiens CGI-18 protein (LOC51008), mRNA   |
| 717                    | 13868                 | 26937             | 1.37                 | 2.0E-01                                       | M77086.1                 | NT                            | O. carinatus germ-line IgH heavy chain V-H pseudogene, allele type VHa2  |
| 833                    | 14011                 | 27067             | 2.09                 | 2.0E-01                                       | AF027665.1               | NT                            | Mus musculus Major Histocompatibility Locus class II region  |
| 1036                   | 14204                 | 27281             | 1.83                 | 2.0E-01                                       | D90905.1                 | NT                            | Synedocytis sp. PCC6803 complete genome, 7/27, 781449-020615   |
| 1149                   | 14313                 | 27369             | 2.81                 | 2.0E-01                                       | AL163213.2               | NT                            | Homo sapiens chromosome 21 segment HS21C013  |
| 1283                   | 14439                 | 27508             | 1.19                 | 2.0E-01                                       | AJ132995.5               | NT                            | Homo sapiens ract1 gene  |
| 1336                   | 14403                 | 27583             | 1.99                 | 2.0E-01                                       | AW394697.1               | EST_HUMAN                     | PM1-HT0425-291260-002-008 HT0422 Homo sapiens cDNA   |
| 1516                   | 14639                 | 27752             | 22.4                 | 2.0E-01                                       | 4503408                  | NT                            | Homo sapiens dystrobrevin, alpha (DTNA), mRNA  |
| 1582                   | 14734                 | 27816             | 2.68                 | 2.0E-01                                       | AB007874.1               | NT                            | Homo sapiens mRNA, chromosome 1 specific transcript KIAA0506   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 1588                   | 14740                 | 27821             | 3.48                 | 2.0E-01                                       | AF280700.1               | NT                            | Homo sapiens sodium/iodide symporter mRNA, partial cds                                       |
| 1732                   | 14882                 | 27973             | 0.98                 | 2.0E-01                                       | U22346.1                 | NT                            | Human bradykinin B1 receptor (bradyr1) gene, complete cds                                    |
| 1755                   | 14804                 |                   | 2.88                 | 2.0E-01                                       | AF111170.3               | NT                            | Homo sapiens 14q32 jagged2 gene, complete cds; and unknown gene                              |
| 1786                   | 14945                 |                   | 3.87                 | 2.0E-01                                       | U67525.1                 | NT                            | Methanococcus jannaschii section 67 of 150 of the complete genome                            |
| 1941                   | 15084                 | 28185             | 1.46                 | 2.0E-01                                       | 8822238                  | NT                            | Homo sapiens hypothetical protein FLJ10120 (FLJ10120), mRNA                                  |
| 2423                   | 15552                 |                   | 1.9                  | 2.0E-01                                       | X82877.1                 | NT                            | H. sapiens Net-D-glucose cotransport regulator gene  |
| 2955                   | 16132                 |                   | 0.79                 | 2.0E-01                                       | AF074890.1               | NT                            | Homo sapiens full length insert cDNA YH85A11   |
| 3578                   | 16741                 | 29768             | 0.72                 | 2.0E-01                                       | P48607                   | SWISSPROT                     | HOMEOBOX PROTEIN GLABRA2 (HOMEOBOXLEUCINE ZIPPER PROTEIN ATHB-10) (HD-ZIP PROTEIN ATHB-10)   |
| 3658                   | 16821                 |                   | 0.91                 | 2.0E-01                                       | AW238005.1               | EST_HUMAN                     | XP15802.x1 NCL_CGAP_HN9 Homo sapiens cDNA clone IMAGE:2740385 3' similar to contains element |
| 3798                   | 16959                 | 20063             | 0.86                 | 2.0E-01                                       | P34641                   | SWISSPROT                     | MER21 repetitive element   |
| 3902                   | 16983                 |                   | 0.8                  | 2.0E-01                                       | 8680797                  | NT                            | GED-11 PROTEIN   |
| 4688                   | 17823                 |                   | 8.71                 | 2.0E-01                                       | BE828165.1               | EST_HUMAN                     | Mus musculus bone morphogenetic protein 8 (Bmp8), mRNA                                       |
| 5152                   | 18274                 | 31243             | 8.41                 | 2.0E-01                                       | 8922080                  | NT                            | QV4-EN0032-190500-223-603 EN0032 Homo sapiens cDNA   |
| 5243                   | 18659                 | 28983             | 0.8                  | 2.0E-01                                       | P34641                   | SWISSPROT                     | Homo sapiens hypothetical protein ASH1 (ASH1), mRNA  |
| 5501                   | 18758                 | 31797             | 2.55                 | 2.0E-01                                       | X56600.1                 | NT                            | GED-11 PROTEIN   |
| 5859                   | 19049                 | 32355             | 2.08                 | 2.0E-01                                       | 11432540                 | NT                            | Rat SOD-2 gene for manganese-containing superoxide dismutase                                 |
| 5983                   | 19149                 | 32464             | 0.82                 | 2.0E-01                                       | X91858.1                 | NT                            | Homo sapiens dual oxidase-like domains 2 (DUOX2), mRNA                                       |
| 6185                   | 19361                 | 32709             | 5.99                 | 2.0E-01                                       | U18300.1                 | NT                            | F. rubripes DNA encoding for valyl-tRNA synthetase   |
| 6303                   | 19476                 |                   | 0.74                 | 2.0E-01                                       | M75967.1                 | NT                            | Saccharomyces cerevisiae Hsfp (HAL5) mRNA, complete cds                                      |
| 6559                   | 19721                 | 33098             | 47.65                | 2.0E-01                                       | X61033.1                 | NT                            | Human hepatocyte growth factor gene, exon 1  |
| 6859                   | 19816                 | 33208             | 3.74                 | 2.0E-01                                       | AW360865.1               | EST_HUMAN                     | M. aureus mu class glutathione transferase gene  |
| 7445                   | 20522                 | 33985             | 1.41                 | 2.0E-01                                       | AF250371.1               | NT                            | PM1-CT0247-141089-001-g08 CT0247 Homo sapiens cDNA   |
| 7603                   | 20673                 | 34147             | 0.83                 | 2.0E-01                                       | P64422                   | SWISSPROT                     | Mus musculus phosphofructokinase-1 C isozyme (Pfkc) gene, exons 3 through 7                  |
| 8199                   | 21221                 |                   | 6.16                 | 2.0E-01                                       | AF028026.1               | NT                            | GLYMA-GLUTAMYL TRANSPEPTIDASE PRECURSOR  |
| 8395                   | 21476                 | 35003             | 3.12                 | 2.0E-01                                       | X91151.1                 | NT                            | Andes virus strain O23133 glycoprotein G1 and G2 precursor, gene, partial cds                |
| 8921                   | 22000                 |                   | 0.48                 | 2.0E-01                                       | BE582247.1               | EST_HUMAN                     | M. musculus scp2 gene exon 14  |
| 9551                   | 22616                 | 36188             | 1.17                 | 2.0E-01                                       | U82511.1                 | NT                            | 601344848F1 NIH_MGC_8 Homo sapiens cDNA clone IMAGE:3677794 5'                               |
| 9590                   | 22845                 | 36215             | 0.62                 | 2.0E-01                                       | U71122.1                 | NT                            | Dictyostellum discoideum random slug cDNA19 protein (rsc19) mRNA, partial cds                |
| 9756                   | 22894                 |                   | 5.42                 | 2.0E-01                                       | AE001278.1               | NT                            | Arabidopsis thaliana pyruvate decarboxylase-2 (Pdc2) gene, complete cds                      |
| 9947                   | 22886                 | 36579             | 0.52                 | 2.0E-01                                       | IP11420                  | SWISSPROT                     | Chlamydia trachomatis section 5 of 87 of the complete genome                                 |
| 9947                   | 22886                 | 36580             | 0.62                 | 2.0E-01                                       | IP11420                  | SWISSPROT                     | DAUGHTERLESS PROTEIN   |
| 10095                  | 23133                 |                   | 2.24                 | 2.0E-01                                       | AF146892.1               | NT                            | DAUGHTERLESS PROTEIN   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens filamin 2 (FLN2) mRNA, complete cds   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 10247                  | 23282                 | 36878             | 1.89                 | 2.0E-01                                       | AF068907.1               | NT                            | Arabidopsis thaliana root gravitropism control protein (PIN2) gene, complete cds  |
| 10247                  | 23282                 | 36879             | 1.89                 | 2.0E-01                                       | AF068907.1               | NT                            | Arabidopsis thaliana root gravitropism control protein (PIN2) gene, complete cds  |
| 10371                  | 23406                 | 37016             | 0.87                 | 2.0E-01                                       | AF157814.1               | NT                            | Homo sapiens cAMP specific phosphodiesterase (PDE4C) gene, exons 2 through 12     |
| 10371                  | 23406                 | 37017             | 0.87                 | 2.0E-01                                       | AF157814.1               | NT                            | Homo sapiens cAMP specific phosphodiesterase (PDE4C) gene, exons 2 through 12     |
| 10419                  | 23454                 |                   | 0.8                  | 2.0E-01                                       | X78938.1                 | NT                            | D.melanogaster DNA mobile element (hoppe)   |
| 10816                  | 23650                 | 37259             | 0.88                 | 2.0E-01                                       | X97121.1                 | NT                            | R.norvegicus mRNA for NTR2 receptor   |
| 11078                  | 24154                 | 37781             | 2.12                 | 2.0E-01                                       | D89088.1                 | NT                            | Salvelinus plusius mRNA for transferrin, complete cds                             |
| 11078                  | 24154                 | 37782             | 2.12                 | 2.0E-01                                       | D89088.1                 | NT                            | Salvelinus plusius mRNA for transferrin, complete cds                             |
| 11908                  | 24895                 | 38597             | 1.33                 | 2.0E-01                                       |                          | 7524759                       | Chlorella vulgaris chloroplast, complete genome                                   |
| 11908                  | 24895                 | 38598             | 1.33                 | 2.0E-01                                       |                          | 7524759                       | Chlorella vulgaris chloroplast, complete genome                                   |
| 12668                  | 25443                 |                   | 1.24                 | 2.0E-01                                       | AF206837.2               | NT                            | Pinophytes promeates liver glucose-6-phosphate-1-dehydrogenase mRNA, partial cds  |
| 12899                  | 25965                 |                   | 1.04                 | 2.0E-01                                       | AF302773.1               | NT                            | Homo sapiens ninein-Lm isoform (ninein) mRNA, complete cds                        |
| 12912                  | 25876                 | 31851             | 1.63                 | 2.0E-01                                       | AW875287.1               | EST_HUMAN                     | Homo sapiens ninein-Lm isoform (ninein) mRNA, complete cds                        |
| 12952                  | 25682                 | 31956             | 1.63                 | 2.0E-01                                       | A023592.1                | EST_HUMAN                     | EST387405 MAGC resequences, MAGN Homo sapiens cDNA                                |
| 12977                  | 25636                 |                   | 17.48                | 2.0E-01                                       | AF078164.2               | NT                            | α69a10.s1 Soares, testis NIT Homo sapiens cDNA clone IMAGE:1643610 3'             |
| 113                    | 13344                 |                   | 4.89                 | 1.9E-01                                       | 7549743                  | NT                            | Homo sapiens Ku70-binding protein (KUB3) mRNA, partial cds                        |
| 362                    | 13573                 | 26804             | 5.99                 | 1.9E-01                                       | AF004353.1               | NT                            | Rattus norvegicus Aryl hydrocarbon receptor nuclear translocator 1 (Ahr1), mRNA   |
| 673                    | 13859                 | 26889             | 1.54                 | 1.9E-01                                       | U32581.2                 | NT                            | Mus musculus pale ear (ep) gene, wild type allele, 3' region, partial cds         |
| 673                    | 13869                 | 26890             | 1.54                 | 1.9E-01                                       | U32581.2                 | NT                            | Homo sapiens lambda/alpha protein kinase C-interacting protein mRNA, complete cds |
| 680                    | 13866                 | 26897             | 8.31                 | 1.9E-01                                       | BE070801.1               | EST_HUMAN                     | Homo sapiens lambda/alpha protein kinase C-interacting protein mRNA, complete cds |
| 681                    | 13866                 | 26897             | 6.7                  | 1.9E-01                                       | BE070801.1               | EST_HUMAN                     | RC3-BT0502-251189-011-d01 BT0502 Homo sapiens cDNA                                |
| 1010                   | 14181                 |                   | 1.72                 | 1.9E-01                                       | 7305180                  | NT                            | RC3-BT0502-251189-011-d01 BT0502 Homo sapiens cDNA                                |
| 1128                   | 14293                 | 27349             | 5.63                 | 1.9E-01                                       | AA358813.1               | EST_HUMAN                     | Mus musculus Interleukin 2 receptor, gamma chain (IL2rg), mRNA                    |
| 1401                   | 14566                 | 27629             | 2.42                 | 1.9E-01                                       | AF061282.1               | NT                            | EST677784 Fetal lung II Homo sapiens cDNA 5' end                                  |
| 1488                   | 14620                 |                   | 4.34                 | 1.9E-01                                       | AF184623.1               | NT                            | Sorghum bicolor 22 kDa kafirin cluster  |
| 2456                   | 15584                 | 28711             | 3.86                 | 1.9E-01                                       | 8922633                  | NT                            | Plasmodium vivax reticulocyte binding protein-2 (rbp-2) gene, complete cds        |
| 2968                   | 16165                 | 29181             | 3.81                 | 1.9E-01                                       | U68068.1                 | NT                            | Homo sapiens hypothetical protein FLJ10581 (FLJ10581), mRNA                       |
| 3004                   | 16179                 |                   | 7.53                 | 1.9E-01                                       | J00922.1                 | NT                            | Gallus gallus ovalbumin (Y) gene, complete cds                                    |
| 3482                   | 16850                 | 29666             | 4.07                 | 1.9E-01                                       | D13197.1                 | NT                            | Stimodon hesperus p53 gene, partial cds   |
| 3589                   | 16734                 | 29760             | 4.94                 | 1.9E-01                                       | R16467.1                 | EST_HUMAN                     | Gallus gallus ovalbumin (Y) gene, complete cds                                    |
| 3907                   | 17068                 | 30065             | 1.09                 | 1.9E-01                                       | AF284017.1               | NT                            | Mouse gene for immunoglobulin diversity region D1                                 |
| 4100                   | 17255                 | 30256             | 3.88                 | 1.9E-01                                       | AB005784.1               | NT                            | y42f10.t1 Soares fetal liver spleen 1NF5 Homo sapiens cDNA clone IMAGE:129547 5'  |
| 4193                   | 17343                 | 30336             | 1.51                 | 1.9E-01                                       | AW754106.1               | EST_HUMAN                     | Rattus norvegicus arylacetamide deacetylase gene, complete cds                    |
| 4251                   | 17397                 |                   | 1.31                 | 1.9E-01                                       | AE001912.1               | NT                            | Schizosaccharomyces pombe DNA for cytoplasmic dynein heavy chain, complete cds    |
|                        |                       |                   |                      |   |                          |                               | CM3-CT0315-271189-045-b11 CT0315 Homo sapiens cDNA                                |
|                        |                       |                   |                      |   |                          |                               | Deinococcus radiodurans R1 section 49 of 229 of the complete chromosome 1         |

Page 98 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 4348                   | 17489                 | 30471             | 0.89                 | 1.9E-01                                       | BE884943.1               | EST_HUMAN                     | MR1-FN0010-280700-007-404 FN0010 Homo sapiens cDNA  |
| 4502                   | 17729                 | 30711             | 0.8                  | 1.9E-01                                       | AL161493.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 5  |
| 6124                   | 18250                 |                   | 1.08                 | 1.9E-01                                       | AF223842.1               | NT                            | Rattus norvegicus chemokine receptor CXCR3 mRNA, complete cds   |
| 5721                   | 18914                 |                   | 5.19                 | 1.9E-01                                       | AW130149.1               | EST_HUMAN                     | X72987.x1 NCI_CGAP_UH1 Homo sapiens cDNA clone IMAGE:2610444 3' similar to gb:M75779 RETINOIC                         |
| 5761                   | 18953                 | 32256             | 8.03                 | 1.9E-01                                       | AF127937.1               | NT                            | ACID RECEPTOR ALPHA-1 (HUMAN);  |
| 5962                   | 19148                 | 32483             | 1.08                 | 1.9E-01                                       | AF091216.1               | NT                            | Homo sapiens DNA polymerase epsilon catalytic subunit protein (POLE1) gene, exon 1a                                   |
| 6006                   | 19191                 |                   | 2.45                 | 1.9E-01                                       | AU133116.1               | EST_HUMAN                     | Mus musculus Wm protein (Wm) gene, complete cds   |
| 6457                   | 19824                 | 32987             | 1.03                 | 1.9E-01                                       | AU133116.1               | EST_HUMAN                     | AU133116 NT2RP4 Homo sapiens cDNA clone NT2RP4001328 5'   |
| 6518                   | 19883                 | 33054             | 1.1                  | 1.9E-01                                       | AW149462.1               | EST_HUMAN                     | W154102.x1 NCI_CGAP_Co18 Homo sapiens cDNA clone IMAGE:2384089 3'   |
| 7112                   | 18538                 | 31495             | 1.54                 | 1.9E-01                                       | R43212.1                 | EST_HUMAN                     | X1408.x1 NCI_CGAP_Kd8 Homo sapiens cDNA clone IMAGE:2618030 3' similar to gb:X03659 ATP                               |
| 7138                   | 20273                 | 33712             | 0.74                 | 1.9E-01                                       | AF034920.1               | NT                            | SYNTHASE BETA CHAIN, MITOCHONDRIAL PRECURSOR (HUMAN);   |
| 7138                   | 20273                 | 33713             | 0.74                 | 1.9E-01                                       | AF034920.1               | NT                            | Yg09a12.e1 Soares Infant brain 1N1B Homo sapiens cDNA clone IMAGE:31663 3' similar to contains MER13                  |
| 7409                   | 20487                 | 33957             | 0.92                 | 1.9E-01                                       | U73948.1                 | NT                            | repetitive element;   |
| 7638                   | 20707                 | 34186             | 0.78                 | 1.9E-01                                       | U93688.1                 | NT                            | Homo sapiens tubby like protein 1 (TULP1) gene, exons 9-11  |
| 7861                   | 20728                 | 34204             | 1.38                 | 1.9E-01                                       | U90922.1                 | NT                            | Homo sapiens tubby like protein 1 (TULP1) gene, exons 9-11  |
| 7708                   | 20773                 | 34258             | 2.64                 | 1.9E-01                                       | AF072724.1               | NT                            | Drosophila melanogaster testis-specific RNA-binding protein (bruno) mRNA, complete cds                                |
| 8174                   | 21256                 | 34778             | 1.83                 | 1.9E-01                                       | AL161557.2               | NT                            | Staphylococcus aureus toxic shock syndrome toxin-1 (tsst), enterotoxin (ent), and Integrase (int) genes, complete cds |
| 8885                   | 21964                 | 35500             | 13.56                | 1.9E-01                                       | AB033024.1               | NT                            | Arabidopsis thaliana serine/threonine protein phosphatase type one (TOPP8) gene, complete cds                         |
| 9146                   | 22226                 | 35768             | 1.5                  | 1.9E-01                                       | M14598.1                 | NT                            | Zea mays starch branching enzyme I (sbe1) gene, complete cds  |
| 9146                   | 22225                 | 35769             | 1.5                  | 1.9E-01                                       | M14598.1                 | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 57   |
| 10079                  | 23117                 | 36719             | 0.77                 | 1.9E-01                                       | AA912486.1               | EST_HUMAN                     | Homo sapiens mRNA for KIAA1168 protein, partial cds   |
| 10447                  | 23482                 | 37080             | 0.81                 | 1.9E-01                                       | BE830363.1               | EST_HUMAN                     | Marsupial cat beta-globin gene mRNA, partial cds  |
| 10447                  | 23482                 | 37081             | 0.81                 | 1.9E-01                                       | BE830363.1               | EST_HUMAN                     | Marsupial cat beta-globin gene mRNA, partial cds  |
| 10880                  | 23065                 | 37593             | 1.38                 | 1.9E-01                                       | AL161503.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 15   |
| 10880                  | 23065                 | 37594             | 1.38                 | 1.9E-01                                       | AL161503.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 16   |
| 10880                  | 23065                 | 37594             | 1.38                 | 1.9E-01                                       | AL161503.2               | NT                            | Homo sapiens calcium channel alpha1E subunit (CACNA1E) gene, exons 7-49, and partial cds, alternatively spliced       |
| 10992                  | 24071                 | 37704             | 2.18                 | 1.9E-01                                       | AF223391.1               | NT                            | Homo sapiens partial 5-HT4 receptor gene, exons 2 to 5  |
| 12025                  | 25009                 | 38711             | 2.21                 | 1.9E-01                                       | AJ243213.1               | NT                            | Influenza A/Guangdong/243/72 nucleoprotein (seg 5) gene, 5' end   |
| 12047                  | 25028                 | 38735             | 1.48                 | 1.9E-01                                       | U07344.1                 | NT                            |   |

Page 99 of 550  
Table 4  
Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 32                     | 13270                 | 26274             | 1.85                 | 1.8E-01                                       | U73200.1                 | NT                            | Mus musculus p16Rip mRNA, complete cds   |
| 270                    | 16009                 | 26519             | 1.47                 | 1.8E-01                                       | AB022090.1               | NT                            | Mus musculus Oxy gene for chaperonin containing TCP-1 gamma subunit, partial cds   |
| 381                    | 13589                 | 26625             | 1.9                  | 1.8E-01                                       | 4502532                  | NT                            | Homo sapiens calcium channel, voltage-dependent, beta 2 subunit (CACNB2) mRNA, and translated products   |
| 765                    | 13946                 | 26663             | 0.78                 | 1.8E-01                                       | AB021490.2               | NT                            | Oryzias latipes gene for membrane guanylyl cyclase OIGC1, complete cds   |
| 1005                   | 14176                 | 27235             | 1.8                  | 1.8E-01                                       | AB12212.1                | EST_HUMAN                     | w47102.x1 NC1_CGAP_L24 Homo sapiens cDNA clone IMAGE:2337051 3'  |
| 1115                   | 14279                 | 27335             | 2.14                 | 1.8E-01                                       | AF000580.1               | NT                            | Dicotyledonum discoidium plasmid Ddps, complete genome   |
| 1317                   | 14473                 | 27640             | 6.87                 | 1.8E-01                                       | AL117189.1               | NT                            | Yersinia pestis plasmid pCD1   |
| 1633                   | 14686                 | 27765             | 1.49                 | 1.8E-01                                       | 6753947                  | NT                            | Mus musculus guanylate nucleotide binding protein 1 (Gbp1), mRNA   |
| 1633                   | 14686                 | 27768             | 1.49                 | 1.8E-01                                       | 6753947                  | NT                            | Mus musculus guanylate nucleotide binding protein 1 (Gbp1), mRNA   |
| 1915                   | 15058                 |                   | 1.91                 | 1.8E-01                                       | AF733708.1               | EST_HUMAN                     | cg22d110.x5 NC1_CGAP_Kid3 Homo sapiens cDNA clone IMAGE:1761811 3' similar to TR:075836 O75836 GAMMA BUTYROBETAINE HYDROXYLASE;  |
| 1965                   | 15108                 | 26208             | 2.28                 | 1.8E-01                                       | AB051897.1               | NT                            | Mus musculus Soya6, Soya6, Soya16-ps, Soya5 genes for small inducible cytokine A6 precursor, small inducible cytokine A9 precursor, Soya16 pseudogene, small inducible cytokine A5 precursor, complete cds |
| 2756                   | 15873                 |                   | 3.34                 | 1.8E-01                                       | AW835728.1               | EST_HUMAN                     | QV3-DT0018-081289-038-g04 DT0018 Homo sapiens cDNA   |
| 2963                   | 16140                 |                   | 2.3                  | 1.8E-01                                       | AF184593.1               | NT                            | Jonopsidium acule LEAFY protein (LEAFY2) gene, partial cds   |
| 2968                   | 16144                 | 29163             | 1.16                 | 1.8E-01                                       | AW182300.1               | EST_HUMAN                     | Y41a03.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2669756 3'   |
| 3194                   | 16369                 | 29375             | 1.81                 | 1.8E-01                                       | AW895178.1               | EST_HUMAN                     | QV0-BN0041-070300-147-g04 BN0041 Homo sapiens cDNA   |
| 3452                   | 16619                 | 29638             | 0.77                 | 1.8E-01                                       | BF183582.1               | EST_HUMAN                     | 601808723R1 NIH_MGC_18 Homo sapiens cDNA clone IMAGE:4040821 3'  |
| 3712                   | 16873                 | 29877             | 0.87                 | 1.8E-01                                       | H03369.1                 | EST_HUMAN                     | Y45e01.s1 Soares placenta Nb2HP Homo sapiens cDNA clone IMAGE:151704 3' similar to contains Alu repetitive element   |
| 3712                   | 16873                 | 29878             | 0.87                 | 1.8E-01                                       | H03369.1                 | EST_HUMAN                     | Y45e01.s1 Soares placenta Nb2HP Homo sapiens cDNA clone IMAGE:151704 3' similar to contains Alu repetitive element   |
| 4453                   | 17623                 |                   | 0.92                 | 1.8E-01                                       | D37854.1                 | NT                            | Bovine NB25 mRNA for MHC class II (BoLA-DQB), complete cds   |
| 4678                   | 17813                 | 30801             | 5.61                 | 1.8E-01                                       | AL161566.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 58  |
| 4895                   | 18026                 | 31011             | 2.68                 | 1.8E-01                                       | AB051897.1               | NT                            | Mus musculus Soya6, Soya6, Soya16-ps, Soya5 genes for small inducible cytokine A6 precursor, small inducible cytokine A9 precursor, Soya16 pseudogene, small inducible cytokine A5 precursor, complete cds |
| 5129                   | 18254                 | 31219             | 0.85                 | 1.8E-01                                       | X78794.1                 | NT                            | N. tabacum mRNA pNA-36   |
| 5158                   | 18280                 | 31245             | 1.79                 | 1.8E-01                                       | AW814270.1               | EST_HUMAN                     | MRS-ST0203-151269-112-g06 ST0203 Homo sapiens cDNA   |
| 5208                   | 18327                 | 31297             | 2.65                 | 1.8E-01                                       | AF181268.1               | NT                            | Meocricetus auratus Na-tauracholates cotransporting polypeptide mRNA, partial cds  |
| 5218                   | 18340                 | 31313             | 0.89                 | 1.8E-01                                       | AF439881.1               | EST_HUMAN                     | U57e04.x1 NC1_CGAP_Lym12 Homo sapiens cDNA clone IMAGE:2134590 3'  |
| 5261                   | 18409                 | 31376             | 1.2                  | 1.8E-01                                       | Y08310.1                 | NT                            | M. boarii mtaC and mtaB genes  |

Page 100 of 550  
Table 4  
Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 5413                   | 18615                 | 31589             | 0.61                 | 1.8E-01                                       | BE082838.1               | EST_HUMAN                     | RO8-BT0641-300300-011-H03 BT0641 Homo sapiens cDNA  |
| 5829                   | 19115                 | 32428             | 1.19                 | 1.8E-01                                       | AL161594.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 80   |
| 6047                   | 19230                 | 32554             | 0.95                 | 1.8E-01                                       | N28629.1                 | EST_HUMAN                     | W38108.1 Soares melanocyte 2N14-IM Homo sapiens cDNA clone IMAGE:284063 5'  |
| 6256                   | 19430                 | 32778             | 0.89                 | 1.8E-01                                       | 6678428                  | NT                            | Mus musculus Trif receptor-associated factor 6 (Trif6), mRNA  |
| 6256                   | 19430                 | 32777             | 0.89                 | 1.8E-01                                       | 6678428                  | NT                            | Mus musculus Trif receptor-associated factor 6 (Trif6), mRNA  |
| 6841                   | 19800                 | 33189             | 1.16                 | 1.8E-01                                       | Q8QY14                   | SWISSPROT                     | FORKHEAD BOX PROTEIN E3   |
| 6888                   | 19846                 |                   | 2.12                 | 1.8E-01                                       | N94853.1                 | EST_HUMAN                     | W62202.1 Soares_multiple_sclerosis_2N14-IMSP Homo sapiens cDNA clone IMAGE:278163 5'                                |
| 7146                   | 20281                 | 33722             | 1.11                 | 1.8E-01                                       | AB018561.1               | NT                            | Citrus limonius mRNA for vsus, complete cds   |
| 7146                   | 20281                 | 33723             | 1.11                 | 1.8E-01                                       | AB018561.1               | NT                            | Citrus limonius mRNA for vsus, complete cds   |
| 7202                   | 20087                 | 33477             | 0.87                 | 1.8E-01                                       | BE961363.1               | EST_HUMAN                     | 601648361R2 NIH_MGC_82 Homo sapiens cDNA clone IMAGE:3832247 3'   |
| 7804                   | 20674                 | 34148             | 0.81                 | 1.8E-01                                       | AP001611.1               | NT                            | Bacillus halodurans genomic DNA, section 574  |
| 8810                   | 21889                 | 35431             | 0.98                 | 1.8E-01                                       | AW068116.1               | EST_HUMAN                     | EST178181 IMAGE ressequencing, MAGI Homo sapiens cDNA   |
| 9543                   | 22008                 | 36176             | 1.58                 | 1.8E-01                                       | M73258.1                 | NT                            | Human cellular DNA/Human papillomavirus proviral DNA  |
| 9574                   | 22716                 | 36284             | 1.62                 | 1.8E-01                                       | 6626232                  | NT                            | Bacteriophage like, complete genome   |
| 9882                   | 22741                 |                   | 0.6                  | 1.8E-01                                       | AA469761.1               | EST_HUMAN                     | nt02405.61 NCI_CGAP_Thy1 Homo sapiens cDNA clone IMAGE:943088 similar to contains L1.13 L1                          |
| 9774                   | 22814                 | 36392             | 0.95                 | 1.8E-01                                       | P15272                   | SWISSPROT                     | repetitive element;   |
| 9774                   | 22814                 | 36393             | 0.95                 | 1.8E-01                                       | P15272                   | SWISSPROT                     | AMP NUCLEOSIDASE  |
| 9814                   | 22854                 | 36432             | 1.02                 | 1.8E-01                                       | M26019.1                 | NT                            | S. communis ordiline-5'-phosphate decarboxylase (URA1) gene, complete cds   |
| 9814                   | 22854                 | 36433             | 1.02                 | 1.8E-01                                       | M26019.1                 | NT                            | S. communis ordiline-5'-phosphate decarboxylase (URA1) gene, complete cds   |
| 9881                   | 23020                 | 36813             | 0.91                 | 1.8E-01                                       | P08123                   | SWISSPROT                     | COLLAGEN ALPHA 2(I) CHAIN PRECURSOR   |
| 9886                   | 23025                 | 36817             | 0.71                 | 1.8E-01                                       | U67548.1                 | NT                            | Methanococcus jannaschii section 80 of 150 of the complete genome   |
| 10337                  | 23372                 |                   | 0.67                 | 1.8E-01                                       | AF200252.1               | NT                            | Aquarius amplius cytochrome oxidase subunit I (COI) gene, partial cds; mitochondrial gene for mitochondrial product |
| 10578                  | 23613                 | 37218             | 1.46                 | 1.8E-01                                       | X63440.1                 | NT                            | M. musculus mRNA for P19-protein tyrosine phosphatase   |
| 10785                  | 23818                 | 37441             | 1.21                 | 1.8E-01                                       | AB011171.1               | NT                            | Homo sapiens mRNA for KIAA0589 protein, partial cds   |
| 10873                  | 23958                 | 37688             | 2.02                 | 1.8E-01                                       | X77336.1                 | NT                            | A. thaliana mRNA for ribonucleotide reductase R2  |
| 10917                  | 24000                 | 37633             | 5                    | 1.8E-01                                       | U38908.1                 | NT                            | Bacteriophage r11 integrase, repressor protein (ro), dUTPase, hsdR and lysis genes, complete cds                    |
| 10974                  | 20281                 | 33722             | 3.05                 | 1.8E-01                                       | AB018561.1               | NT                            | Citrus limonius mRNA for vsus, complete cds   |
| 10974                  | 20281                 | 33723             | 3.05                 | 1.8E-01                                       | AB018561.1               | NT                            | Citrus limonius mRNA for vsus, complete cds   |
| 10975                  | 24054                 | 37898             | 4.41                 | 1.8E-01                                       | AF019107.1               | NT                            | Dibutyryl adenosine diphosphate kinase (DBK) gene, complete cds   |
| 11270                  | 24338                 | 37976             | 2.06                 | 1.8E-01                                       | M69267.1                 | NT                            | Human carcinoembryonic antigen (CEA) gene, exon 4   |
| 11551                  | 24608                 | 38284             | 1.41                 | 1.8E-01                                       | AW275728.1               | EST_HUMAN                     | xp40h10.x1 NCI_CGAP_HN11 Homo sapiens cDNA clone IMAGE:2742883 3'   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 11750                  | 23636                 | 37683             | 8.94                 | 1.8E-01                                       | X57033.1                 | NT                            | B. laurus mRNA for potassium channel   |
| 12061                  | 25042                 | 38751             | 3.48                 | 1.8E-01                                       | 8394421                  | NT                            | Rattus norvegicus Thrombospondin receptor (Tbr22), mRNA  |
| 12124                  | 25104                 | 38808             | 1.77                 | 1.8E-01                                       | AA085094.1               | EST_HUMAN                     | cp2798.seq.F Human fetal heart, Lambda ZAP Express Homo sapiens cDNA 5'  |
| 12339                  | 25183                 |                   | 1.79                 | 1.8E-01                                       | 10086561                 | NT                            | Bovine ephemeral fever virus, complete genome  |
| 12398                  | 25224                 | 32103             | 1.26                 | 1.8E-01                                       | BF348623.1               | EST_HUMAN                     | 6020718928F1 NCI CGAP_Bim67 Homo sapiens cDNA clone IMAGE:4155318 5'   |
| 12719                  | 14473                 | 27540             | 1.18                 | 1.8E-01                                       | AL117189.1               | NT                            | Yersinia pestis plasmid pCD1   |
| 12811                  | 26541                 |                   | 3.28                 | 1.8E-01                                       | Q98882                   | SWISSPROT                     | DNA TERMINAL PROTEIN (BELLETTI PROTEIN) (PTP PROTEIN)  |
| 12942                  | 25620                 |                   | 20.8                 | 1.8E-01                                       | R24494.1                 | EST_HUMAN                     | YH4810.r1 Soares placenta Nib2-P Homo sapiens cDNA clone IMAGE:133027 5'   |
| 12988                  | 25843                 |                   | 4.98                 | 1.8E-01                                       | Y11114.1                 | NT                            | E. dispar mRNA for hexokinase (hck1)   |
| 13035                  | 26134                 | 31548             | 1.7                  | 1.8E-01                                       | 9506952                  | NT                            | Rattus norvegicus procollagen C-proteinase enhancer protein (Pcohe), mRNA  |
| 591                    | 13782                 | 26801             | 8.4                  | 1.7E-01                                       | BE385164.1               | EST_HUMAN                     | 601274504F1 NIH_MGC 20 Homo sapiens cDNA clone IMAGE:3815788 5'  |
| 828                    | 14006                 | 27063             | 3.18                 | 1.7E-01                                       | X53330.1                 | NT                            | P. humani histone gene cluster for core histones H2A, H2B, H3 and H4   |
| 983                    | 14156                 |                   | 1.79                 | 1.7E-01                                       | P38616                   | SWISSPROT                     | NEUROFILAMENT TRIPLET L PROTEIN (NEUROFILAMENT LIGHT POLYPEPTIDE) (NF-L)   |
| 1083                   | 14249                 | 27305             | 0.89                 | 1.7E-01                                       | AF081810.1               | NT                            | Lymantia dispar nucleopolydnavirus, complete genome  |
| 1083                   | 14249                 | 27308             | 0.89                 | 1.7E-01                                       | AF081810.1               | NT                            | Lymantia dispar nucleopolydnavirus, complete genome  |
| 1800                   | 15008                 | 28113             | 2.44                 | 1.7E-01                                       | AL161573.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 69  |
| 2038                   | 15179                 |                   | 3.23                 | 1.7E-01                                       | AF255051.1               | NT                            | Homo sapiens BNIP3H (BNIP3H) gene, complete cds; nuclear gene for mitochondrial product  |
| 2922                   | 16100                 | 29112             | 2.13                 | 1.7E-01                                       | AF000716.1               | NT                            | Vibrio cholerae hypoxanthine phosphoribosyltransferase (hpt) gene, partial cds, hemagglutinin/protease regulatory protein (hapR) gene, complete cds, and YRAL VBCO gene, partial cds |
| 2922                   | 16100                 | 29113             | 2.13                 | 1.7E-01                                       | AF000716.1               | NT                            | Vibrio cholerae hypoxanthine phosphoribosyltransferase (hpt) gene, partial cds, hemagglutinin/protease regulatory protein (hapR) gene, complete cds, and YRAL VBCO gene, partial cds |
| 2983                   | 16169                 | 29186             | 1.47                 | 1.7E-01                                       | AA336608.1               | EST_HUMAN                     | EST41651 Endometrial tumor Homo sapiens cDNA 5' end  |
| 3061                   | 16237                 | 29257             | 1.09                 | 1.7E-01                                       | AJ238738.1               | NT                            | Naja naja atra cbx-1 gene, exons 1-3   |
| 3061                   | 16237                 | 29258             | 1.09                 | 1.7E-01                                       | AJ238738.1               | NT                            | Naja naja atra cbx-1 gene, exons 1-3   |
| 3174                   | 16349                 | 29355             | 1.65                 | 1.7E-01                                       | AF081514.1               | NT                            | Taus canadensis geranylgeranyl diphosphate synthase mRNA, complete cds   |
| 3451                   | 16818                 | 29637             | 0.81                 | 1.7E-01                                       | N55763.1                 | EST_HUMAN                     | J2346F Human fetal heart, Lambda ZAP Express Homo sapiens cDNA clone J2346 5'  |
| 3534                   | 16939                 | 29710             | 1.52                 | 1.7E-01                                       | AJ269505.1               | NT                            | Anabaena sp. ORF4 (partial), ORF3, ORF2, ORF1, adpA gene, adpB gene, adpC gene, adpD gene, adpE gene and adpF gene   |
| 4049                   | 17203                 | 30215             | 6.06                 | 1.7E-01                                       | AJ235377.1               | NT                            | Homo sapiens derivative 11 breakpoint fragment: partial intron 10 of the ALL-1/MLL/IRX gene fused to intron 5 of the AF-4/TEL gene   |
| 4681                   | 17818                 |                   | 2.49                 | 1.7E-01                                       | X52936.1                 | NT                            | Schistosoma gregaria alpha repetitive DNA  |
| 4884                   | 18014                 | 30698             | 0.59                 | 1.7E-01                                       | AF217490.1               | NT                            | Homo sapiens fragile 16D oxidoreductase (FOR) gene, exons 8, 9, and partial cds  |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 4981                   | 18080                 | 31068             | 1.31                 | 1.7E-01                                       | A1247635.1               | EST_HUMAN                     | q157a09.x1 Soares fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:1848808 3' similar to contains OFR.b1 OFR repetitive element: |
| 5231                   | 18353                 |                   | 1.07                 | 1.7E-01                                       | AF072725.1               | NT                            | Zea mays starch branching enzyme IIb (ae) gene, complete cds  |
| 5272                   | 18391                 | 31359             | 0.72                 | 1.7E-01                                       | BF030010.1               | EST_HUMAN                     | 001557250F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:3827197 5'   |
| 5312                   | 18428                 | 31389             | 0.81                 | 1.7E-01                                       | D37951.1                 | NT                            | Rattus norvegicus mRNA for MBP1 (C-myc intron binding protein 1), complete cds  |
| 5524                   | 18721                 | 31737             | 1.88                 | 1.7E-01                                       | AA470888.1               | EST_HUMAN                     | nef3a02.s1 NCI_CGAP_Cc3 Homo sapiens cDNA clone IMAGE:881066 3' similar to gb:M17886 60S  |
| 5524                   | 18721                 | 31738             | 1.88                 | 1.7E-01                                       | AA470888.1               | EST_HUMAN                     | ACIDIC RIBOSOMAL PROTEIN P1 (HUMAN);  |
| 5710                   | 18803                 | 32188             | 0.82                 | 1.7E-01                                       | U43599.1                 | NT                            | Brugia pahangi microfilament protein SHP3 (shp3) gene, complete cds   |
| 6459                   | 19828                 | 32988             | 12.64                | 1.7E-01                                       | H727118.1                | EST_HUMAN                     | ys02g06.s1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:213658 3'  |
| 6517                   | 19882                 | 33052             | 0.72                 | 1.7E-01                                       | A1370976.1               | EST_HUMAN                     | ta20c11.x1 Soares fetal_lung_NHL19W Homo sapiens cDNA clone IMAGE:2045492 3'  |
| 6517                   | 19882                 | 33053             | 0.72                 | 1.7E-01                                       | A1370976.1               | EST_HUMAN                     | ta20c11.x1 Soares fetal_lung_NHL19W Homo sapiens cDNA clone IMAGE:2045492 3'  |
| 6892                   | 18511                 | 31503             | 0.75                 | 1.7E-01                                       | BE300286.1               | EST_HUMAN                     | 600944067T1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:2980248 3'   |
| 7019                   | 20155                 |                   | 1.94                 | 1.7E-01                                       | AF026562.3               | NT                            | Mesocricetus auratus oviductin precursor (OVI) gene, complete cds   |
| 7140                   | 20275                 |                   | 0.69                 | 1.7E-01                                       | Z92810.1                 | NT                            | Homo sapiens HFE gene   |
| 7369                   | 20448                 | 33911             | 1.38                 | 1.7E-01                                       | AF000422.1               | NT                            | Escherichia coli O157:H7 genomic DNA, Sakai-VT2 prophage inserted region  |
| 7448                   | 20525                 | 33938             | 8.61                 | 1.7E-01                                       | BE734179.1               | EST_HUMAN                     | 601669022F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3843984 5'   |
| 7649                   | 20718                 | 34195             | 1.21                 | 1.7E-01                                       | P16724                   | SWISSPROT                     | PROBABLE PROCESSING AND TRANSPORT PROTEIN UL56 (HFLF0 PROTEIN)  |
| 7666                   | 25850                 | 34208             | 0.64                 | 1.7E-01                                       | Q01855                   | SWISSPROT                     | COLLAGEN ALPHA 3(V) CHAIN PRECURSOR   |
| 8045                   | 21128                 | 34648             | 1.28                 | 1.7E-01                                       | AF000573.1               | NT                            | Homo sapiens homocysteine 1,2-dioxygenase gene, complete cds  |
| 8150                   | 21232                 | 34752             | 0.75                 | 1.7E-01                                       | AF000573.1               | NT                            | Pseudomonas putida long-chain-fatty-acid-CoA ligase (fadD) gene, complete cds   |
| 8472                   | 21553                 | 35063             | 7.35                 | 1.7E-01                                       | AF150669.1               | NT                            | Homo sapiens cleavage and polyadenylation specificity factor 3, 73kD subunit (CPSF3), mRNA  |
| 8472                   | 21553                 | 35064             | 7.35                 | 1.7E-01                                       | AF150669.1               | NT                            | Homo sapiens cleavage and polyadenylation specificity factor 3, 73kD subunit (CPSF3), mRNA  |
| 8895                   | 21974                 | 35511             | 0.5                  | 1.7E-01                                       | AW982873.1               | EST_HUMAN                     | RC2-BN0032-120200-011-rt10 BN0032 Homo sapiens cDNA   |
| 8925                   | 22004                 | 35543             | 1.83                 | 1.7E-01                                       | D00394.1                 | NT                            | Rat (SHR strain) SX1 gene   |
| 9045                   | 22124                 | 35668             | 0.94                 | 1.7E-01                                       | AF217413.1               | NT                            | Homo sapiens neurotrophin 3 isoform gene, complete cds, alternatively spliced   |
| 9045                   | 22124                 | 35667             | 0.94                 | 1.7E-01                                       | AF217413.1               | NT                            | Homo sapiens neurotrophin 3 isoform gene, complete cds, alternatively spliced   |
| 9198                   | 22276                 | 35814             | 0.91                 | 1.7E-01                                       | RT7002.1                 | EST_HUMAN                     | yf68g02.r1 Soares placenta Nb2HP Homo sapiens cDNA clone IMAGE:144242 5'  |
| 9369                   | 22444                 | 36005             | 0.53                 | 1.7E-01                                       | BE253142.1               | EST_HUMAN                     | 601116672F1 NIH_MGC_16 Homo sapiens cDNA clone IMAGE:3357184 5'   |
| 9369                   | 22444                 | 36006             | 0.53                 | 1.7E-01                                       | BE253142.1               | EST_HUMAN                     | 601116672F1 NIH_MGC_16 Homo sapiens cDNA clone IMAGE:3357184 5'   |
| 9789                   | 22828                 | 36407             | 9.03                 | 1.7E-01                                       | AP001608.1               | NT                            | Bacillus halodurans genomic DNA, section 2/14   |
| 9899                   | 22939                 | 36524             | 0.54                 | 1.7E-01                                       | AW977455.1               | EST_HUMAN                     | EST389584 IMAGE resequences, MAGO Homo sapiens cDNA   |
| 9899                   | 22939                 | 36525             | 0.54                 | 1.7E-01                                       | AW977455.1               | EST_HUMAN                     | EST389584 IMAGE resequences, MAGO Homo sapiens cDNA   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 8816                   | 23855                 | 36543             | 2.08                 | 1.7E-01                                       | U16288.1                 | NT                            | Human class IV alcohol dehydrogenase (ADH7) gene, exon 3  |
| 8882                   | 23031                 | 36821             | 0.47                 | 1.7E-01                                       | Z34508.1                 | NT                            | Human immunodeficiency virus type 1 (B7.05) env gene (partial)  |
| 9892                   | 23031                 | 36822             | 0.47                 | 1.7E-01                                       | Z34508.1                 | NT                            | Human immunodeficiency virus type 1 (B7.05) env gene (partial)  |
| 10013                  | 23051                 | 36845             | 0.93                 | 1.7E-01                                       | A1251748.1               | NT                            | Drosophila melanogaster mRNA for serine protease inhibitor (serpin-6), (sp6 gene)   |
| 10438                  | 23473                 |                   | 2.77                 | 1.7E-01                                       | AL163284.2               | NT                            | Human septins chromosome 21 segment HS21C084  |
| 10605                  | 23639                 | 37247             | 1.56                 | 1.7E-01                                       | 11427203                 | NT                            | Human septins solute carrier family 7 (cationic amino acid transporter, y <sup>+</sup> system), member 2 (SLC7A2), mRNA         |
| 10607                  | 23841                 | 37249             | 1.66                 | 1.7E-01                                       | AA627972.1               | EST_HUMAN                     | nc80e07.s1 NCL CGAP_Co8 Homo septins cDNA clone IMAGE:1148282 3' similar to gb1.25081 TRANSFORMING PROTEIN RHOC (HUMAN);        |
| 10819                  | 24022                 | 37636             | 9.54                 | 1.7E-01                                       | BE390835.1               | EST_HUMAN                     | 601286547F1 NIH_MGC_44 Homo septins cDNA clone IMAGE:3613258 5'   |
| 11045                  | 24122                 | 37768             | 2.12                 | 1.7E-01                                       | AA814617.1               | EST_HUMAN                     | α43a03.s1 NCL CGAP_CNS1 Homo septins cDNA clone IMAGE:1428624 3'  |
| 11373                  | 24434                 | 38090             | 6.81                 | 1.7E-01                                       | 7106300                  | NT                            | Mus musculus adenomatosis polyposis coli binding protein Eb1 (Eb1), mRNA  |
| 11373                  | 24434                 | 38091             | 6.81                 | 1.7E-01                                       | 7106300                  | NT                            | Mus musculus adenomatosis polyposis coli binding protein Eb1 (Eb1), mRNA  |
| 11657                  | 24736                 | 38427             | 1.71                 | 1.7E-01                                       | AA883375.1               | EST_HUMAN                     | α45f09.s1 Scores_NFL_T_GBC_S1 Homo septins cDNA clone IMAGE:1460297 3'  |
| 12011                  | 24696                 |                   | 1.5                  | 1.7E-01                                       | P15272                   | SWISSPROT                     | AMP NUCLEOSIDASE  |
| 12042                  | 25023                 | 38727             | 1.97                 | 1.7E-01                                       | P65899                   | SWISSPROT                     | IGG RECEPTOR FCRN LARGE SUBUNIT P51 PRECURSOR (FCRN) (NEONATAL FC RECEPTOR) (IGG FC FRAGMENT RECEPTOR TRANSPORTER, ALPHA CHAIN) |
| 12042                  | 25023                 | 38728             | 1.97                 | 1.7E-01                                       | P65899                   | SWISSPROT                     | IGG RECEPTOR FCRN LARGE SUBUNIT P51 PRECURSOR (FCRN) (NEONATAL FC RECEPTOR) (IGG FC FRAGMENT RECEPTOR TRANSPORTER, ALPHA CHAIN) |
| 12142                  | 25117                 | 38825             | 2                    | 1.7E-01                                       | 11416157                 | NT                            | Homo septins calcium channel, voltage-dependent, alpha 11 subunit (CACNA11), mRNA   |
| 12275                  | 26087                 |                   | 1.45                 | 1.7E-01                                       | AL163278.2               | NT                            | Homo septins chromosome 21 segment HS21C078   |
| 12567                  | 25920                 |                   | 1.18                 | 1.7E-01                                       | AB24404.1                | EST_HUMAN                     | α48g05.x1 NCL CGAP_U11 Homo septins cDNA clone IMAGE:2274872 3' similar to gbM73779 RETINOIC ACID RECEPTOR ALPHA-1 (HUMAN);     |
| 12607                  | 25600                 | 31972             | 7.24                 | 1.7E-01                                       | U01917.1                 | NT                            | Human beta globin region on chromosome 11   |
| 128                    | 13366                 | 26388             | 1.7                  | 1.6E-01                                       | AF217532.1               | NT                            | Homo septins mevalonate kinase gene, exon 6 and 7   |
| 697                    | 15985                 | 26913             | 1.16                 | 1.6E-01                                       | F31497.1                 | EST_HUMAN                     | y176f12.1 Scores placenta Nb2HP Homo septins cDNA clone IMAGE:1355689 5'  |
| 1661                   | 14703                 | 27783             | 4.25                 | 1.6E-01                                       | AF208117.1               | NT                            | Homo septins homeobox protein OTX2 gene, complete cds   |
| 1810                   | 15053                 |                   | 1.27                 | 1.6E-01                                       | AJ235272.1               | NT                            | Rickettsia prowazekii strain Macdfr E, complete genome, segment 3/4   |
| 1877                   | 15120                 | 28221             | 2.14                 | 1.6E-01                                       | P22063                   | SWISSPROT                     | AXONIN-1 PRECURSOR (AXONAL GLYCOPROTEIN TAG-1)  |
| 2041                   | 15182                 |                   | 1.43                 | 1.6E-01                                       | U10334.1                 | NT                            | Craesostrea gigas RNA polymerase II largest subunit mRNA, partial cds   |
| 2457                   | 16063                 | 28712             | 1.09                 | 1.6E-01                                       | X94232.1                 | NT                            | H. sapiens mRNA for novel T-cell activation protein   |
| 2562                   | 16687                 | 28813             | 2.73                 | 1.6E-01                                       | AB037729.1               | NT                            | Homo septins mRNA for KIAA1308 protein, partial cds   |
| 2957                   | 16134                 | 29149             | 14.1                 | 1.6E-01                                       | AF185589.1               | NT                            | Homo septins cytochrome P450 3A4 (CYP3A4) gene, promoter region   |
| 2957                   | 16134                 | 29150             | 14.1                 | 1.6E-01                                       | AF185589.1               | NT                            | Homo septins cytochrome P450 3A4 (CYP3A4) gene, promoter region   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 3723                   | 16884                 | 28889             | 1.23                 | 1.6E-01                                       | AJ003165.1               | NT                            | Populus trichocarpa cv. Trichobel ABI3 gene   |
| 3723                   | 16884                 | 28890             | 1.23                 | 1.6E-01                                       | AJ003165.1               | NT                            | Populus trichocarpa cv. Trichobel ABI3 gene   |
| 3872                   | 17031                 | 30030             | 0.82                 | 1.6E-01                                       | AE000982.1               | NT                            | Archaeoglobus fulgidus section 145 of 172 of the complete genome  |
| 4107                   | 17201                 |                   | 2.8                  | 1.6E-01                                       | AE004413.1               | NT                            | Vibrio cholerae chromosome II, section 70 of 93 of the complete chromosome  |
| 4144                   | 17286                 | 30288             | 1.21                 | 1.6E-01                                       | AF084458.1               | NT                            | Citridia fasciculata tyrosinase (hml) gene, complete cds  |
| 4448                   | 17688                 | 30569             | 10.91                | 1.6E-01                                       | AF170680.1               | NT                            | Homo sapiens apelin gene, complete cds  |
| 4578                   | 17715                 |                   | 2.49                 | 1.6E-01                                       | AW988901.1               | EST_HUMAN                     | EST380677 MAGE resequences, MAGJ Homo sapiens cDNA  |
| 4596                   | 17723                 |                   | 4.39                 | 1.6E-01                                       | 6753319                  | NT                            | Mus musculus chaperonin subunit 3 (gamma) (Ccs3), mRNA  |
| 5060                   | 18188                 | 31182             | 1.39                 | 1.6E-01                                       | AA088343.1               | EST_HUMAN                     | z84109.s1 Stratiogene colon (837204) Homo sapiens cDNA clone IMAGE:511361 3' similar to TR:E221955                        |
| 5083                   | 18211                 | 31183             | 1.8                  | 1.6E-01                                       | AJ006359.1               | NT                            | E221955 38,855 BP SEGMENT OF CHROMOSOME XV. ;   |
| 5083                   | 18211                 | 31184             | 1.8                  | 1.6E-01                                       | AJ006359.1               | NT                            | Lycopodium obscurum RsaI fragment 2, satellite region   |
| 5345                   | 18458                 |                   | 0.93                 | 1.6E-01                                       | AF045283.1               | NT                            | Lycopodium obscurum RsaI fragment 2, satellite region   |
| 5503                   | 18702                 | 31719             | 0.81                 | 1.6E-01                                       | L40608.1                 | NT                            | Gallus gallus smooth muscle/muscle myosin light chain kinase gene, exon 29  |
| 5639                   | 18833                 | 31909             | 2.9                  | 1.6E-01                                       | AW197498.1               | EST_HUMAN                     | Plasmodium falciparum (strain Dd2) variant-specific surface protein (var-1) gene, complete cds                            |
| 5639                   | 18833                 | 31910             | 2.9                  | 1.6E-01                                       | AW197498.1               | EST_HUMAN                     | xm43101.x1 NCL CGAP_G08 Homo sapiens cDNA clone IMAGE:2888689 3' similar to TR:O75984 O75984                              |
| 5651                   | 18845                 | 32126             | 1.99                 | 1.6E-01                                       | AF034718.1               | NT                            | HYPOTHETICAL 127.6 KD PROTEIN ;   |
| 6152                   | 19328                 | 32674             | 0.73                 | 1.6E-01                                       | BE925603.1               | EST_HUMAN                     | xm43101.x1 NCL CGAP_G08 Homo sapiens cDNA clone IMAGE:2888689 3' similar to TR:O75984 O75984                              |
| 6558                   | 19720                 | 33087             | 2.06                 | 1.6E-01                                       | AL161588.2               | NT                            | Rattus norvegicus CCAAT/enhancer binding protein epsilon (cebp) gene, complete cds  |
| 6558                   | 19720                 | 33087             | 2.06                 | 1.6E-01                                       | AL161588.2               | NT                            | RC3-BN0034-310800-113-h01 BN0034 Homo sapiens cDNA  |
| 6939                   | 20252                 | 33688             | 0.79                 | 1.6E-01                                       | AB046788.1               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 84   |
| 6985                   | 20213                 |                   | 0.88                 | 1.6E-01                                       | BF683630.1               | EST_HUMAN                     | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 84   |
| 7103                   | 18530                 | 31485             | 4.15                 | 1.6E-01                                       | AW281215.1               | EST_HUMAN                     | Homo sapiens mRNA for KIAA1596 protein, partial cds   |
| 7481                   | 20528                 | 34001             | 0.71                 | 1.6E-01                                       | Z49832.1                 | NT                            | 602130855F1 NIH_MGC 48 Homo sapiens cDNA clone IMAGE:4301004 5'   |
| 7955                   | 21005                 | 34518             | 1.83                 | 1.6E-01                                       | AW246359.1               | EST_HUMAN                     | U1H-B12-egl-b-08-0-J1.61 NCL CGAP_Sub4 Homo sapiens cDNA clone IMAGE:2724418 3'   |
| 7982                   | 21031                 | 34544             | 0.84                 | 1.6E-01                                       | 67533237                 | NT                            | U1H-B12-egl-b-08-0-J1.61 NCL CGAP_Sub4 Homo sapiens cDNA clone IMAGE:2724418 3'   |
| 7988                   | 21036                 |                   | 1.03                 | 1.6E-01                                       | AU136525.1               | EST_HUMAN                     | S. cerevisiae chromosome X reading frame ORF YJR132w  |
| 8053                   | 21136                 | 34667             | 1.62                 | 1.6E-01                                       | L48348.1                 | NT                            | 2822248.6prtime NIH_MGC 7 Homo sapiens cDNA clone IMAGE:2822248 5'  |
| 8215                   | 21297                 |                   | 0.53                 | 1.6E-01                                       | BE244087.1               | EST_HUMAN                     | Mus musculus Car2+>-dependent activator protein for secretion (Capas), mRNA   |
| 8310                   | 21392                 | 34916             | 0.77                 | 1.6E-01                                       | U38243.1                 | NT                            | AU136525 PLACE1 Homo sapiens cDNA clone PLACE1004498 5'   |
|                        |                       |                   |                      |   |                          |                               | Corilla gorilla androgen receptor gene, partial exon  |
|                        |                       |                   |                      |   |                          |                               | TCBAP-1E0007 Pediatric pre-B cell acute lymphoblastic leukemia Baylor-HGSC project=TCBA Homo sapiens cDNA clone TCBAP0607 |
|                        |                       |                   |                      |   |                          |                               | Bacteroides vulgatus beta-lactamase (cbaA) gene, complete cds and mobilization protein (mobA) gene, complete cds          |

Table 4.

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 8833                   | 21912                 | 35450             | 1.08                 | 1.6E-01                                       | Z89118.1                 | NT                            | Bacillus subtilis complete genome (section 16 of 21): from 2897771 to 3213410                                     |
| 9028                   | 22105                 | 35546             | 0.77                 | 1.6E-01                                       | R13673.1                 | EST_HUMAN                     | Y80H08.J1 Soares Infant brain (NIB Homo sapiens cDNA clone IMAGE:28873 5'   |
| 9133                   | 22212                 |                   | 0.74                 | 1.6E-01                                       | L36861.1                 | NT                            | Homo sapiens guanylate cyclase activating protein (GCAP) gene exons 1-4, complete cds                             |
| 9171                   | 22249                 | 35702             | 1.85                 | 1.6E-01                                       | Z49501.1                 | NT                            | S. cerevisiae chromosome X reading frame ORF YJR001W  |
| 9311                   | 22387                 |                   | 0.78                 | 1.6E-01                                       | AF11167.2                | NT                            | Homo sapiens jun dimerization protein gene, partial cds; cfos gene, complete cds; and unknown gene                |
| 9851                   | 22881                 |                   | 1.77                 | 1.6E-01                                       | BF375171.1               | EST_HUMAN                     | RC3-ST0200-041189-011-h01 ST0200 Homo sapiens cDNA  |
| 9854                   | 22894                 | 36475             | 1.98                 | 1.6E-01                                       | Z49501.1                 | NT                            | S. cerevisiae chromosome X reading frame ORF YJR001W  |
| 9891                   | 22931                 |                   | 1.19                 | 1.6E-01                                       | BE155684.1               | EST_HUMAN                     | PM2-H10353-270100-004-f11 HT0353 Homo sapiens cDNA  |
| 10828                  | 23859                 | 37482             | 0.5                  | 1.6E-01                                       | 11128016                 | NT                            | Homo sapiens nuclear autoantigen (GS2NA), mRNA  |
| 10833                  | 23977                 | 37609             | 2.34                 | 1.6E-01                                       | AW850853.1               | EST_HUMAN                     | IL3-CT0220-111189-028-G01 CT0220 Homo sapiens cDNA  |
| 11244                  | 24313                 | 37851             | 1.94                 | 1.6E-01                                       | O14647                   | SWISSPROT                     | CHROMODOMAIN-HELICASE-DNA-BINDING PROTEIN 2 (CHD-2)   |
| 11244                  | 24313                 | 37852             | 1.34                 | 1.6E-01                                       | O14647                   | SWISSPROT                     | CHROMODOMAIN-HELICASE-DNA-BINDING PROTEIN 2 (CHD-2)   |
| 11249                  | 24318                 | 37858             | 1.62                 | 1.6E-01                                       | BE259649.1               | EST_HUMAN                     | 601145783F1 NIH_MGC_19 Homo sapiens cDNA clone IMAGE:3161183 5'   |
| 11377                  | 24498                 |                   | 3.8                  | 1.6E-01                                       | AF106084.1               | NT                            | Plasmodium falciparum calcium-dependent protein kinase-3 (cdpk3) gene, complete cds                               |
| 11697                  | 24694                 | 38388             | 7.53                 | 1.6E-01                                       | 6871552                  | NT                            | Mus musculus adaptor-related protein complex AP-1, beta 1 subunit (Ap1b1), mRNA                                   |
| 12277                  | 25207                 | 38363             | 3.89                 | 1.6E-01                                       | AV719586.1               | EST_HUMAN                     | AV719585 GLC Homo sapiens cDNA clone GLCEMF07 5'  |
| 12597                  | 26402                 | 32043             | 2                    | 1.6E-01                                       | L14933.1                 | NT                            | Rat conversase PC8 mRNA, 5' end   |
| 12630                  | 25423                 |                   | 1.38                 | 1.6E-01                                       | AW639711.1               | EST_HUMAN                     | RC1-LT0074-120200-014-h01_1 LT0074 Homo sapiens cDNA  |
| 12733                  | 25893                 |                   | 11.84                | 1.6E-01                                       | AB045310.1               | NT                            | Gucunis sativus KS mRNA for ent-kaurene synthase, complete cds  |
| 12833                  | 25616                 |                   | 2.71                 | 1.6E-01                                       | AK024406.1               | NT                            | Homo sapiens mRNA for FLJ00104 protein, partial cds   |
| 13029                  | 25678                 |                   | 5.04                 | 1.6E-01                                       | AF287344.1               | NT                            | Fuchala hybrid cultivar Qiu 94208 ribosomal protein S10 gene, partial cds; nuclear gene for mitochondrial product |
| 13054                  | 25690                 | 31884             | 1.69                 | 1.6E-01                                       | 9606522                  | NT                            | Rattus norvegicus chondroitin sulfate proteoglycan 5 (neuroglycan C) (Cspg5), mRNA                                |
| 13080                  | 25694                 |                   | 1.4                  | 1.6E-01                                       | BE267894.1               | EST_HUMAN                     | 601125459F1 NIH_MGC_81 Homo sapiens cDNA clone IMAGE:3345038 5'   |
| 13189                  | 25782                 |                   | 1.29                 | 1.6E-01                                       | BF672696.1               | EST_HUMAN                     | 602152004F1 NIH_MGC_81 Homo sapiens cDNA clone IMAGE:4293145 5'   |
| 258                    | 13477                 | 26508             | 1.7                  | 1.6E-01                                       | BE710087.1               | EST_HUMAN                     | IL3-HT0616-040700-197-E05 HT0616 Homo sapiens cDNA  |
| 258                    | 13477                 | 26509             | 1.7                  | 1.6E-01                                       | BE710087.1               | EST_HUMAN                     | IL3-HT0616-040700-197-E05 HT0616 Homo sapiens cDNA  |
| 600                    | 15984                 |                   | 2.5                  | 1.5E-01                                       | AV711696.1               | EST_HUMAN                     | AV711696 DCA Homo sapiens cDNA clone DCAADH06 5'  |
| 805                    | 13985                 | 27037             | 1.38                 | 1.5E-01                                       | AL163284.2               | NT                            | Homo sapiens chromosome 21 segment HS21G084   |
| 1116                   | 14281                 | 27337             | 1.44                 | 1.5E-01                                       | AJ009735.1               | NT                            | Cyprinus carpio mRNA for EGGS22 myosin heavy chain, 3'UTR   |
| 1121                   | 14286                 | 27341             | 2.7                  | 1.5E-01                                       | AJ251885.1               | NT                            | Homo sapiens partial SLC22A2 gene for organic cation transporter (OCT2), exon 1                                   |
| 1137                   | 14302                 |                   | 1.85                 | 1.5E-01                                       | L36125.1                 | NT                            | Rattus norvegicus insulin-responsive glucose transporter (GLUT4) gene, 5' end                                     |
| 1243                   | 14402                 | 27463             | 2.37                 | 1.5E-01                                       | AW195516.1               | EST_HUMAN                     | Xr39d111.x1 NC1_CGAP_Kd11 Homo sapiens cDNA clone IMAGE:2899085 3'  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 1304                   | 14480                 | 27528             | 3.22                 | 1.5E-01                                       | D28535.1                 | NT                            | Human gene for dihydropyrimidine succinyltransferase, complete cds (exon 1-15)                                    |
| 1304                   | 14480                 | 27527             | 3.22                 | 1.5E-01                                       | D28535.1                 | NT                            | Human gene for dihydropyrimidine succinyltransferase, complete cds (exon 1-15)                                    |
| 1511                   | 14684                 | 27749             | 1.38                 | 1.5E-01                                       | AF117340.1               | NT                            | Mus musculus MAP kinase kinase kinase 1 (Mekk1) mRNA, complete cds  |
| 1857                   | 15100                 | 28200             | 0.98                 | 1.5E-01                                       | AW444451.1               | EST_HUMAN                     | UI-H-B13-akb-b-09-0-UJ.s1 NCL CGAP_Sub61 Homo sapiens cDNA clone IMAGE:2733941 3'                                 |
| 2980                   | 16166                 |                   | 0.9                  | 1.5E-01                                       | AW572510.1               | EST_HUMAN                     | xw55aa02.y2 NCL CGAP_Pan1 Homo sapiens cDNA clone IMAGE:2831978 3' similar to gb:X55072_mart                      |
| 3100                   | 16276                 | 28290             | 0.91                 | 1.5E-01                                       | M81441.1                 | NT                            | THYROID HORMONE RECEPTOR ALPHA-1 (HUMAN);   |
| 3118                   | 16294                 | 28308             | 0.82                 | 1.5E-01                                       | O78887                   | SWISSPROT                     | Bos taurus factor V variant 2 (factor V) mRNA, complete cds   |
| 3433                   | 16801                 | 29820             | 5.78                 | 1.5E-01                                       | AA695049.1               | EST_HUMAN                     | NADH-UBIQUINONE OXIDOREDUCTASE CHAIN 4  |
| 3454                   | 16821                 | 29841             | 0.73                 | 1.5E-01                                       | Z23104.1                 | NT                            | RETINOL-BINDING PROTEIN 1, CELLULAR (HUMAN);  |
| 3454                   | 16821                 | 29842             | 0.73                 | 1.5E-01                                       | Z23104.1                 | NT                            | L.stagnalis mRNA for G protein-coupled receptor   |
| 3851                   | 17011                 | 30011             | 2.35                 | 1.5E-01                                       | U09984.1                 | NT                            | L.stagnalis mRNA for G protein-coupled receptor   |
| 3887                   | 17028                 | 30025             | 0.83                 | 1.5E-01                                       | 7108388                  | NT                            | Mus musculus [CR/Swiss glyceraldehyde 3-phosphate dehydrogenase (Gapd-S) gene, complete cds                       |
| 3881                   | 17040                 | 30037             | 0.77                 | 1.5E-01                                       | M97982.1                 | NT                            | Homo sapiens pyruvate dehydrogenase kinase, isoenzyme 1 (PDK1), nuclear gene encoding mitochondrial protein, mRNA |
| 3970                   | 17128                 | 30131             | 2.45                 | 1.5E-01                                       | AW685983.1               | EST_HUMAN                     | XYNA; Thermotoga bacterium; xynA; 4182 base-pairs   |
| 3987                   | 17144                 | 30149             | 0.88                 | 1.5E-01                                       | AJ003165.1               | NT                            | h10006.x1 Soares_NFL_I_GBC_S1 Homo sapiens cDNA clone IMAGE:2981411 3'  |
| 3987                   | 17144                 | 30150             | 0.88                 | 1.5E-01                                       | AJ003165.1               | NT                            | Populus trichocarpa cv. Trichobal ABI3 gene   |
| 4161                   | 17312                 | 30308             | 1.16                 | 1.5E-01                                       | AW986659.1               | EST_HUMAN                     | Populus trichocarpa cv. Trichobal ABI3 gene   |
| 4210                   | 17359                 | 30348             | 0.67                 | 1.5E-01                                       | Z12828.1                 | NT                            | RC2.H10149.101099-012-c09 H10149 Homo sapiens cDNA  |
| 4289                   | 17442                 | 30428             | 0.85                 | 1.5E-01                                       | AL163284.2               | NT                            | B.hapalus mitochondrion DNA for ORF158  |
| 4847                   | 17980                 | 30989             | 1.64                 | 1.5E-01                                       | BF687885.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C084   |
| 4874                   | 18891                 | 29002             | 2.33                 | 1.5E-01                                       | BF685381.1               | EST_HUMAN                     | 602067192F1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:4088223 5'   |
| 5114                   | 18242                 | 31207             | 1.5                  | 1.5E-01                                       | AL161560.2               | NT                            | 602083269F1 NIH_MGC_81 Homo sapiens cDNA clone IMAGE:4247537 5'   |
| 5370                   | 18573                 | 31441             | 1.91                 | 1.5E-01                                       | F07998                   | SWISSPROT                     | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 60   |
| 5399                   | 18601                 | 31571             | 1.33                 | 1.5E-01                                       | AF266662.1               | NT                            | THROMBOSPONDIN 1 PRECURSOR  |
| 5443                   | 18843                 |                   | 5.95                 | 1.5E-01                                       | P15198                   | SWISSPROT                     | Calman crocodilus MHC class II beta chain (hclbeta) gene, complete cds  |
| 5655                   | 18849                 | 32131             | 4.8                  | 1.5E-01                                       | AW850754.1               | EST_HUMAN                     | SEX HORMONE-BINDING GLOBULIN PRECURSOR (SHBG) (SEX STEROID-BINDING PROTEIN)                                       |
| 5697                   | 18891                 | 32182             | 6.66                 | 1.5E-01                                       | U65016.1                 | NT                            | (SBP) (TESTIS-SPECIFIC ANDROGEN-BINDING PROTEIN) (ABP)  |
| 5697                   | 18891                 | 32183             | 6.66                 | 1.5E-01                                       | U65016.1                 | NT                            | IL3-CT0219-160200-064-F10 CT0219 Homo sapiens cDNA  |
| 6029                   | 19212                 | 32532             | 0.82                 | 1.5E-01                                       | 4508810                  | NT                            | Mus musculus transforming growth factor alpha (TGFA) mRNA, complete cds   |
|                        |                       |                   |                      |   |                          |                               | Mus musculus transforming growth factor alpha (TGFA) mRNA, complete cds   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens sodium channel, voltage-gated, type VI, alpha polypeptide (SCN8A) mRNA                               |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 6128                   | 19307                 | 32847             | 1.71                 | 1.5E-01                                       | 6753659                  | NT                            | Mus musculus DNA methyltransferase 2 (Dnmt2), mRNA   |
| 6128                   | 19307                 | 32848             | 1.71                 | 1.5E-01                                       | 6753659                  | NT                            | Mus musculus DNA methyltransferase 2 (Dnmt2), mRNA   |
| 6168                   | 19344                 | 32890             | 2.19                 | 1.5E-01                                       | AJ270505.1               | NT                            | Mus musculus genomic fragment, 279 Kb, chromosome 7  |
| 6324                   | 19486                 | 32862             | 3.49                 | 1.5E-01                                       | BE727658.1               | EST_HUMAN                     | 601564322F1 NIH_MGC_20 Homo sapiens cDNA clone IMAGE:3833981 5'  |
| 6376                   | 19545                 |                   | 1.98                 | 1.5E-01                                       | 4508396                  | NT                            | Homo sapiens RAD54 (S.cerevisiae)-like (RAD54L) mRNA   |
| 6474                   | 19641                 | 33002             | 1.74                 | 1.5E-01                                       | AF134907.1               | NT                            | Influenza B virus (B/Nanchang/490/94) NB protein gene, complete cds; and neuraminidase gene, partial cds               |
| 6631                   | 25828                 | 33179             | 3.68                 | 1.5E-01                                       | AE001039.1               | NT                            | Archaeoglobus fulgidus section 68 of 172 of the complete genome  |
| 6661                   | 19820                 | 33207             | 4.73                 | 1.5E-01                                       | 11417236                 | NT                            | Homo sapiens chromosome 5 open reading frame 3 (C5ORF3), mRNA  |
| 6672                   | 19831                 | 33220             | 1.67                 | 1.5E-01                                       | P48508                   | SWISSPROT                     | GLUTAMATE-CYSTEINE LIGASE REGULATORY SUBUNIT (GAMMA-GLUTAMYL-CYSTEINE SYNTHETASE) (GAMMA-ECS) (GCS LIGHT CHAIN)        |
| 6719                   | 19876                 | 33257             | 2.35                 | 1.5E-01                                       | Q28462                   | SWISSPROT                     | AMELOGENIN   |
| 6823                   | 19976                 | 33383             | 0.86                 | 1.5E-01                                       | AA714780.1               | EST_HUMAN                     | mw30410.s1 NCI_CGAP_GC80 Homo sapiens cDNA clone IMAGE:1241871 3'  |
| 6852                   | 20006                 | 33414             | 2.24                 | 1.5E-01                                       | P30143                   | SWISSPROT                     | HYPOTHETICAL 51.7 KD PROTEIN IN THRC-TALB INTERGENIC REGION (ORF8)   |
| 7118                   | 18544                 | 31500             | 6                    | 1.5E-01                                       | AW970295.1               | EST_HUMAN                     | EST382376 IMAGE resequences, MAGK Homo sapiens cDNA  |
| 7158                   | 25840                 |                   | 0.8                  | 1.5E-01                                       | AA811545.1               | EST_HUMAN                     | cb73802.s1 NCI_CGAP_GC81 Homo sapiens cDNA clone IMAGE:1337019 3' similar to contains element LTR2 repetitive element; |
| 7366                   | 20444                 |                   | 4.73                 | 1.5E-01                                       | AF210842.1               | NT                            | Homo sapiens HARP (HARP) gene, exon 17 and complete cds  |
| 7550                   | 20822                 | 34089             | 1.63                 | 1.5E-01                                       | AB79157.1                | EST_HUMAN                     | wf52098.x1 NCI_CGAP_UH Homo sapiens cDNA clone IMAGE:2491310 3'  |
| 7764                   | 20823                 | 34314             | 0.88                 | 1.5E-01                                       | AF298073.1               | NT                            | Bos taurus Niemann-Pick type C1 disease protein (NPC1) mRNA, complete cds  |
| 7764                   | 20823                 | 34315             | 0.88                 | 1.5E-01                                       | AF298073.1               | NT                            | Bos taurus Niemann-Pick type C1 disease protein (NPC1) mRNA, complete cds  |
| 7775                   | 20832                 | 34322             | 1.68                 | 1.5E-01                                       | AW500611.1               | EST_HUMAN                     | UHF-BN0-ak4-05-0-U1.r1 NH_MGC_50 Homo sapiens cDNA clone IMAGE:3077409 5'  |
| 7775                   | 20832                 | 34323             | 1.68                 | 1.5E-01                                       | AW500611.1               | EST_HUMAN                     | UHF-BN0-ak4-05-0-U1.r1 NH_MGC_50 Homo sapiens cDNA clone IMAGE:3077409 5'  |
| 7919                   | 20970                 | 34477             | 0.79                 | 1.5E-01                                       | U46660.1                 | NT                            | Saccharomyces cerevisiae weak multicopy suppressor of bcs1-1 (SOL3) gene, complete cds                                 |
| 8248                   | 21330                 | 34946             | 0.89                 | 1.5E-01                                       | P21303                   | SWISSPROT                     | MEROZOITE RECEPTOR PK68 PRECURSOR (68 KD PROTECTIVE MINOR SURFACE ANTIGEN)   |
| 8414                   | 21495                 | 35028             | 1.1                  | 1.5E-01                                       | AA970317.1               | EST_HUMAN                     | 0085g12.s1 NCI_CGAP_Kd5 Homo sapiens cDNA clone IMAGE:1573030 3' similar to gb:M26082                                  |
| 8507                   | 21598                 |                   | 1.06                 | 1.5E-01                                       | BE884789.1               | EST_HUMAN                     | INTERLEUKIN-2 RECEPTOR BETA CHAIN PRECURSOR (HUMAN)  |
| 8594                   | 21675                 |                   | 14.14                | 1.5E-01                                       | C16800.1                 | EST_HUMAN                     | 601570523F1 NIH_MGC_71 Homo sapiens cDNA clone IMAGE:3912004 5'  |
| 8628                   | 21708                 | 35245             | 1.87                 | 1.5E-01                                       | L27835.1                 | NT                            | C16800 Clontech human aorta polyA+ mRNA (#6572) Homo sapiens cDNA clone GEN-329H-09 5'                                 |
| 8793                   | 21872                 | 35411             | 2.17                 | 1.5E-01                                       | D84478.1                 | NT                            | Panglossinadon glycosyl growth hormone (GH) mRNA, complete cds   |
| 8814                   | 21893                 |                   | 0.79                 | 1.5E-01                                       | P43448                   | SWISSPROT                     | Homo sapiens mRNA for ASK1, complete cds   |
| 9038                   | 22117                 | 35680             | 3.12                 | 1.5E-01                                       | 4501972                  | NT                            | WNT-10A PROTEIN PRECURSOR  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens adaptor-related protein complex 1, beta 1 subunit (ADTB1), mRNA   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 8805                   | 22381                 | 35932             | 2.58                 | 1.5E-01                                       | N74228.1                 | EST_HUMAN                     | zsf8a06.s1 Soares fetal liver spleen 1NfLS Homo sapiens cDNA clone IMAGE:286868 3' similar to     |
| 9394                   | 22469                 | 36033             | 1.34                 | 1.5E-01                                       | BF585465.1               | EST_HUMAN                     | PIR:544443 S44443 RAD23 protein homolog2 - human;   |
| 9401                   | 22475                 |                   | 2.52                 | 1.5E-01                                       | AV754819.1               | EST_HUMAN                     | GVO00404 Human Pterofasia Differential Display Homo sapiens cDNA                                  |
| 9605                   | 22680                 |                   | 0.84                 | 1.5E-01                                       | AU130007.1               | EST_HUMAN                     | AV754819 TP Homo sapiens cDNA clone TPAAB12 5'  |
| 9652                   | 21095                 | 34809             | 6.7                  | 1.5E-01                                       | U00455.1                 | NT                            | AU130007 NT2RP3 Homo sapiens cDNA clone NT2RP3000080 5'   |
|                        |                       |                   |                      |   |                          |                               | Adiposar transmembrane vitalogenin mRNA, partial cds  |
| 10022                  | 23060                 | 36856             | 0.71                 | 1.5E-01                                       | M77144.1                 | NT                            | Human type II 3-beta hydroxysteroid dehydrogenase/ 5-delta - 4-delta isomerase gene, complete cds |
| 10126                  | 23163                 | 36761             | 7.82                 | 1.5E-01                                       | AF007570.1               | NT                            | Aplysia californica carboxypeptidase D mRNA, complete cds   |
| 10126                  | 23163                 | 36762             | 7.82                 | 1.5E-01                                       | AF007570.1               | NT                            | Aplysia californica carboxypeptidase D mRNA, complete cds   |
| 10407                  | 23442                 | 37049             | 2.59                 | 1.5E-01                                       | X98852.1                 | NT                            | P. lentusculus mRNA for integrin beta subunit   |
| 10496                  | 23530                 |                   | 0.51                 | 1.5E-01                                       | AB027759.1               | NT                            | Mesocricetus auratus mRNA for collagen type XVII, complete cds                                    |
| 10516                  | 23551                 | 37161             | 2.38                 | 1.5E-01                                       | A1814046.1               | EST_HUMAN                     | wk53h12.x1 NCI CGAP_P22 Homo sapiens cDNA clone IMAGE:2419175 3' similar to gb:M27508 BETA        |
| 10516                  | 23561                 | 37162             | 2.38                 | 1.5E-01                                       | A1814046.1               | EST_HUMAN                     | GALACTOSIDASE-RELATED PROTEIN PRECURSOR (HUMAN);  |
| 10588                  | 23633                 | 37242             | 1.22                 | 1.5E-01                                       | U40832.1                 | NT                            | wk53h12.x1 NCI CGAP_P22 Homo sapiens cDNA clone IMAGE:2419175 3' similar to gb:M27508 BETA        |
| 10761                  | 23794                 | 37413             | 1.69                 | 1.5E-01                                       | AJ011904.1               | NT                            | GALACTOSIDASE-RELATED PROTEIN PRECURSOR (HUMAN);  |
| 10761                  | 23794                 | 37414             | 1.69                 | 1.5E-01                                       | AJ011904.1               | NT                            | Dentio retro transcription factor Pax9b (Pax9) mRNA, complete cds                                 |
| 10835                  | 24017                 | 37649             | 1.67                 | 1.5E-01                                       | BE088492.1               | EST_HUMAN                     | Claviceps purpurea ps1 gene   |
| 10836                  | 24017                 | 37650             | 1.67                 | 1.5E-01                                       | BE088492.1               | EST_HUMAN                     | Claviceps purpurea ps1 gene   |
| 11063                  | 24139                 | 37773             | 4.46                 | 1.5E-01                                       | AL163280.2               | NT                            | CM2-BT00688-210300-122-f11 BT00688 Homo sapiens cDNA  |
| 11063                  | 24139                 | 37774             | 4.46                 | 1.5E-01                                       | AL163280.2               | NT                            | CM2-BT00688-210300-122-f11 BT00688 Homo sapiens cDNA  |
| 11331                  | 24394                 | 38042             | 1.38                 | 1.5E-01                                       | AW841915.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C080   |
| 11925                  | 24911                 |                   | 1.34                 | 1.5E-01                                       | A1183704.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C080   |
| 12232                  | 25953                 |                   | 38.98                | 1.5E-01                                       | BF700582.1               | EST_HUMAN                     | IL6-CN0024-030300-026-D04 CN0024 Homo sapiens cDNA  |
| 12628                  | 25422                 |                   | 1.64                 | 1.5E-01                                       | AF030358.2               | NT                            | qt72a01.x1 Soares fetal lung NBH-19W Homo sapiens cDNA clone IMAGE:1744636 3' similar to          |
| 12633                  | 25426                 |                   | 1.23                 | 1.5E-01                                       | AJ298832.1               | NT                            | gb:M17987 60S ACIDIC RIBOSOMAL PROTEIN P2 (HUMAN);  |
| 12698                  | 25676                 |                   | 0.64                 | 1.5E-01                                       | R83077.1                 | EST_HUMAN                     | 602128753F-1 NIH_MGC_56 Homo sapiens cDNA clone IMAGE:4285549 5'                                  |
| 12749                  | 25468                 |                   | 1.52                 | 1.5E-01                                       | AP001514.1               | NT                            | Rattus norvegicus chemokine CX3C mRNA, complete cds   |
| 12778                  | 25520                 | 32002             | 1.41                 | 1.5E-01                                       | 9695473                  | NT                            | Mus musculus mRNA for death inducer-collagenase-1 (Dle-1)   |
| 12807                  | 26000                 |                   | 2.59                 | 1.5E-01                                       | AV741272.1               | EST_HUMAN                     | yp87e04.1 Soares fetal liver spleen 1NfLS Homo sapiens cDNA clone IMAGE:194430 5'                 |
| 12832                  | 25898                 | 31857             | 7.68                 | 1.5E-01                                       | AL138074.2               | NT                            | Bacillus halodurans genomic DNA, section 8/14   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 13183                  | 25769                 | 31832             | 6.61                 | 1.6E-01                                       | AJ276242.1               | NT                            | Sus scrofa mRNA for sodium iodide symporter  |
| 13227                  | 28138                 |                   | 2.26                 | 1.6E-01                                       | 9631294                  | NT                            | Melanoplus sanguipes entomopoxvirus, complete genome   |
| 310                    | 13526                 |                   | 1.23                 | 1.4E-01                                       | AF008663.1               | NT                            | Homo sapiens T cell receptor beta locus, TCRBV8S6P to TCRBV21S2A2 region   |
| 633                    | 14108                 |                   | 3.24                 | 1.4E-01                                       | D78638.1                 | NT                            | Xenopus laevis mRNA for DNA (cytosine-5)-methyltransferase, complete cds   |
| 1288                   | 14444                 |                   | 2.98                 | 1.4E-01                                       | T81984.1                 | EST_HUMAN                     | yo54c01.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:112032 3'   |
| 1787                   | 14936                 |                   | 1.48                 | 1.4E-01                                       | 6878980                  | NT                            | Mus musculus growth differentiation factor 5 (Gdf5), mRNA  |
| 1790                   | 14939                 | 28032             | 1.84                 | 1.4E-01                                       | AE001710.1               | NT                            | Thermoplasma maritima section 22 of 136 of the complete genome   |
| 1954                   | 15037                 |                   | 1.27                 | 1.4E-01                                       | AW135741.1               | EST_HUMAN                     | UHH-B1-act-a-08-0-UJ.s1 NCL CGAP_Sub3 Homo sapiens cDNA clone IMAGE:2714008 3'   |
| 2042                   | 15183                 |                   | 14.84                | 1.4E-01                                       | AA720615.1               | EST_HUMAN                     | iy72807.s1 NCL CGAP_GCBT Homo sapiens cDNA clone IMAGE:1283821 3'  |
| 2544                   | 15669                 | 28783             | 1.02                 | 1.4E-01                                       | P30706                   | SWISSPROT                     | GLYCEROL-3-PHOSPHATE ACYLTRANSFERASE PRECURSOR (GPAT)  |
| 2853                   | 15967                 | 29077             | 3.34                 | 1.4E-01                                       | AB33496.1                | EST_HUMAN                     | wm74d01.x1 NCL CGAP_U12 Homo sapiens cDNA clone IMAGE:2441665 3'   |
| 4289                   | 17434                 | 30421             | 9.45                 | 1.4E-01                                       | AB99094.1                | EST_HUMAN                     | b66c02.x1 NCL CGAP_Lu24 Homo sapiens cDNA clone IMAGE:2273570 3'   |
| 4289                   | 17434                 | 30422             | 9.45                 | 1.4E-01                                       | AB99094.1                | EST_HUMAN                     | b66c02.x1 NCL CGAP_Lu24 Homo sapiens cDNA clone IMAGE:2273570 3'   |
| 4362                   | 17496                 | 30475             | 4.28                 | 1.4E-01                                       | AE001710.1               | NT                            | Thermoplasma maritima section 22 of 136 of the complete genome   |
| 4531                   | 17689                 |                   | 0.7                  | 1.4E-01                                       | AA776287.1               | EST_HUMAN                     | z60b01.s1 Soares fetal liver spleen INFLS_S1 Homo sapiens cDNA clone IMAGE:453673 3' similar to gbs-X01057_ma1 INTERLEUKIN-2 RECEPTOR ALPHA CHAIN PRECURSOR (HUMAN); contains Alu repetitive element |
| 4798                   | 17833                 | 30820             | 0.79                 | 1.4E-01                                       | 5453861                  | NT                            | Homo sapiens phosphodiesterase 4A, cAMP-specific (dunce (Drosophila); homolog phosphodiesterase E2) (PDE4A), mRNA  |
| 5322                   | 18436                 | 31408             | 0.52                 | 1.4E-01                                       | AJ005180.1               | NT                            | Lycopodium obscurum genomic RAPD band 28   |
| 5421                   | 18622                 | 31698             | 5.21                 | 1.4E-01                                       | T00677.1                 | EST_HUMAN                     | ye15c11.s1 Stratiotes lung (#837210) Homo sapiens cDNA clone IMAGE:117812 3'   |
| 5444                   | 18644                 | 31621             | 4.33                 | 1.4E-01                                       | AB004556.1               | NT                            | Candida tropicalis DNA for mitochondrial NADP-linked isocitrate dehydrogenase, complete cds  |
| 5444                   | 18644                 | 31622             | 4.33                 | 1.4E-01                                       | AB004556.1               | NT                            | Candida tropicalis DNA for mitochondrial NADP-linked isocitrate dehydrogenase, complete cds  |
| 8427                   | 18666                 | 32881             | 3.17                 | 1.4E-01                                       | BE32881.1                | EST_HUMAN                     | hm7c02.x1 NCL CGAP_Kid11 Homo sapiens cDNA clone IMAGE:3133538 3'  |
| 8811                   | 19771                 | 33161             | 4.45                 | 1.4E-01                                       | AU117147.1               | EST_HUMAN                     | AU117147 HEMBA1 Homo sapiens cDNA clone HEMBA1000769 5'  |
| 8811                   | 19771                 | 33162             | 4.46                 | 1.4E-01                                       | AU117147.1               | EST_HUMAN                     | AU117147 HEMBA1 Homo sapiens cDNA clone HEMBA1000769 5'  |
| 6701                   | 19858                 | 33249             | 3.7                  | 1.4E-01                                       | AW082798.1               | EST_HUMAN                     | xb71d12.x1 Scores_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2581751 3'  |
| 6715                   | 19873                 |                   | 1.51                 | 1.4E-01                                       | BE266936.1               | EST_HUMAN                     | 801183523F1 NIH_MGC_7 Homo sapiens cDNA clone IMAGE:3837681 5'   |
| 6739                   | 19886                 | 33286             | 2.48                 | 1.4E-01                                       | BF378533.1               | EST_HUMAN                     | QV1-UM0036-080300-103-d09 UM0036 Homo sapiens cDNA   |
| 7278                   | 20369                 |                   | 0.71                 | 1.4E-01                                       | AL118568.1               | EST_HUMAN                     | DKFZp701A0910.1 701 (synonym: hamy2) Homo sapiens cDNA clone DKFZp701A0910 5'  |
| 7646                   | 20817                 |                   | 1.78                 | 1.4E-01                                       | AW016373.1               | EST_HUMAN                     | UHH-B10-act-c-08-0-UJ.s1 NCL CGAP_Sub1 Homo sapiens cDNA clone IMAGE:2710289 3'  |
| 7618                   | 20888                 |                   | 0.73                 | 1.4E-01                                       | AT762827.1               | EST_HUMAN                     | w04f12.x1 NCL CGAP_CL1 Homo sapiens cDNA clone IMAGE:2389285 3' similar to SW:ICE4_HUMAN P49682 CASPASE-4 PRECURSOR;   |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 7621                   | 20691                 | 34167             | 0.63                 | 1.4E-01                                       | T63770.1                 | EST_HUMAN                     | ye0011.12 Stratiogene placenta (#837225) Homo sapiens cDNA clone IMAGE:68973 5' similar to contains        |
| 7799                   | 20855                 | 34345             | 0.55                 | 1.4E-01                                       | U85645.1                 | NT                            | Alu repetitive element   |
| 7832                   | 20982                 | 34490             | 1.02                 | 1.4E-01                                       | AI305102.1               | EST_HUMAN                     | Oryctolagus cuniculus fructose 1,6-bisphosphate aldolase (AldB) gene, complete cds                         |
| 8162                   | 21244                 |                   | 0.54                 | 1.4E-01                                       | BF310268.1               | EST_HUMAN                     | Q80B12.x1 Soares_NIHMP1.S1 Homo sapiens cDNA clone IMAGE:1878583 3'  |
| 8670                   | 21750                 |                   | 1.32                 | 1.4E-01                                       | AV689047.1               | EST_HUMAN                     | 601894760.F1 NIH_MGC_19 Homo sapiens cDNA clone IMAGE:4124189 5'   |
| 8894                   | 22063                 |                   | 0.8                  | 1.4E-01                                       | AI436093.1               | EST_HUMAN                     | AV689047 GLC Homo sapiens cDNA clone GLCFSH08 3'   |
| 9114                   | 22193                 | 35738             | 4.94                 | 1.4E-01                                       | AA307073.1               | EST_HUMAN                     | tr92B12.x1 Soares_NSF_F8_9W_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:2126111 3' similar to                 |
| 9184                   | 22272                 | 35810             | 0.76                 | 1.4E-01                                       | AW023636.1               | EST_HUMAN                     | TR-002710 O02710 GAG POLYPROTEIN:  |
| 9322                   | 22398                 | 35951             | 1.07                 | 1.4E-01                                       | R62748.1                 | EST_HUMAN                     | EST178182 Colon carcinoma (HCC) cell line Homo sapiens cDNA 5' end   |
| 9322                   | 22398                 | 35952             | 1.07                 | 1.4E-01                                       | R62748.1                 | EST_HUMAN                     | af58603.y1 Morton Fetal Cochlea Homo sapiens cDNA clone IMAGE:2487485 5'                                   |
| 9388                   | 22463                 | 36027             | 8.62                 | 1.4E-01                                       | BF310959.1               | EST_HUMAN                     | y10105.r1 Soares placenta N62HP Homo sapiens cDNA clone IMAGE:138873 5'                                    |
| 9475                   | 22532                 | 36098             | 1.72                 | 1.4E-01                                       | W63411.1                 | EST_HUMAN                     | y10105.r1 Soares placenta N62HP Homo sapiens cDNA clone IMAGE:138873 5'                                    |
| 9547                   | 22612                 | 36180             | 0.54                 | 1.4E-01                                       | X73283.1                 | NT                            | 601895465.F1 NIH_MGC_19 Homo sapiens cDNA clone IMAGE:4124824 5'   |
| 9547                   | 22612                 | 36181             | 0.54                 | 1.4E-01                                       | X73283.1                 | NT                            | z64e04.l1 Soares_fetal_heart_Nb1H19W Homo sapiens cDNA clone IMAGE:357102 5' similar to contains           |
| 9558                   | 22623                 | 36194             | 1.65                 | 1.4E-01                                       | Y10198.1                 | NT                            | element KER repetitive element:  |
| 9558                   | 22623                 | 36196             | 1.65                 | 1.4E-01                                       | Y10198.1                 | NT                            | M.vannielii genes rpoH, rpoB and rpoA  |
| 9649                   | 21082                 | 34607             | 1.81                 | 1.4E-01                                       | AF121381.1               | NT                            | M.vannielii genes rpoH, rpoB and rpoA  |
| 10009                  | 23047                 | 36641             | 0.54                 | 1.4E-01                                       | X66082.1                 | NT                            | Homo sapiens PHEX gene   |
| 10192                  | 23229                 | 36821             | 0.88                 | 1.4E-01                                       | AF023813.1               | NT                            | Homo sapiens PHEX gene   |
| 10293                  | 23328                 | 36831             | 0.81                 | 1.4E-01                                       | AW021908.1               | EST_HUMAN                     | Drosophila melanogaster signal transducing adaptor protein (STAM), serine threonine kinase lal (lal), and  |
| 10293                  | 23328                 | 36832             | 0.91                 | 1.4E-01                                       | AW021908.1               | EST_HUMAN                     | zinc finger protein (DNZ1) genes, complete cds   |
| 10463                  | 23498                 | 37109             | 0.76                 | 1.4E-01                                       | BF376285.1               | EST_HUMAN                     | C.parietis ORF for putative membrane transport protein   |
| 10463                  | 23498                 | 37110             | 0.76                 | 1.4E-01                                       | BF376285.1               | EST_HUMAN                     | Macronitrium levatum small ribosomal protein 4 (rps4) gene, chloroplast gene encoding chloroplast protein, |
| 10680                  | 23714                 |                   | 0.91                 | 1.4E-01                                       | T64268.1                 | EST_HUMAN                     | partial cds  |
| 10825                  | 23858                 | 37481             | 0.7                  | 1.4E-01                                       | Z89117.1                 | NT                            | df28h08.y1 Morton Fetal Cochlea Homo sapiens cDNA clone IMAGE:2485084 5'                                   |
| 10948                  | 24030                 |                   | 1.32                 | 1.4E-01                                       | AA911480.1               | EST_HUMAN                     | df28h08.y1 Morton Fetal Cochlea Homo sapiens cDNA clone IMAGE:2485084 5'                                   |
| 11081                  | 24156                 | 37793             | 2.57                 | 1.4E-01                                       | R63400.1                 | EST_HUMAN                     | df28h08.y1 Morton Fetal Cochlea Homo sapiens cDNA clone IMAGE:2485084 5'                                   |
| 11282                  | 24348                 | 37985             | 1.68                 | 1.4E-01                                       | AW104882.1               | EST_HUMAN                     | MR3-ST0218-211298-013-e08 ST0218 Homo sapiens cDNA   |
| 11354                  | 24416                 | 38071             | 1.68                 | 1.4E-01                                       | T64102.1                 | EST_HUMAN                     | MR3-ST0218-211298-013-e08 ST0218 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | MR3-ST0218-211298-013-e08 ST0218 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | y447003.r1 Soares fetal liver spleen TNFLS Homo sapiens cDNA clone IMAGE:111365 5'                         |
|                        |                       |                   |                      |   |                          |                               | Bacillus subtilis complete genome (section 14 of 21): from 2632461 to 2812870                              |
|                        |                       |                   |                      |   |                          |                               | ca89803.s1 NCL_GGAP_GC81 Homo sapiens cDNA clone IMAGE:1920384 3'  |
|                        |                       |                   |                      |   |                          |                               | y70c05.r1 Soares breast 2NHF181 Homo sapiens cDNA clone IMAGE:154088 5'                                    |
|                        |                       |                   |                      |   |                          |                               | xl73e10.x1 Soares_NFL_T_GBC.S1 Homo sapiens cDNA clone IMAGE:2603274 3'                                    |
|                        |                       |                   |                      |   |                          |                               | y447010.r1 Soares fetal liver spleen TNFLS Homo sapiens cDNA clone IMAGE:120630 5'                         |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Description   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 11354                  | 24416                 | 38072             | 1.58                 | 1.4E-01                                       | T88102.1                 | EST_HUMAN                     | ye47g10.11 Soares fetal liver spleen 1N1LS Homo sapiens cDNA clone IMAGE:120830 5'  |
| 11358                  | 24418                 | 38076             | 2.36                 | 1.4E-01                                       | P08848                   | SWISSPROT                     | INTEGRIN ALPHA-5 PRECURSOR (FIBRONECTIN RECEPTOR ALPHA SUBUNIT) (INTEGRIN ALPHA-F) (VLA-5) (CD49E)  |
| 11572                  | 24627                 | 38308             | 1.85                 | 1.4E-01                                       | X68092.1                 | NT                            | C. parvulus ORF for putative membrane transport protein   |
| 11613                  | 20617                 |                   | 1.57                 | 1.4E-01                                       | AW015373.1               | EST_HUMAN                     | UHFBI0-est-c-09-Q-U1s1 NCI_OGAP_Sub1 Homo sapiens cDNA clone IMAGE:2710289 3'   |
| 11757                  | 23943                 | 37570             | 2.07                 | 1.4E-01                                       | U28780.1                 | NT                            | Borrelia burgdorferi glyceraldehyde-3-phosphate dehydrogenase (GAPDH), phosphoglycerate kinase (PGK), triosephosphate isomerase (TPI) genes, complete cds   |
| 11816                  | 24805                 |                   | 1.51                 | 1.4E-01                                       | X52102.1                 | NT                            | M.musculus p16K gene for 16 kDa protein   |
| 12038                  | 25020                 | 38724             | 10.18                | 1.4E-01                                       | AF148783.2               | NT                            | Mus musculus neuromedin U precursor (Nmu) gene, partial cds; PnLP (Tphlp) gene, partial cds; CLOCK (Clock) gene, complete cds; PFT27 (Pit27) gene, complete cds; and H5AR (H5ar) gene, complete cds |
| 12580                  | 25382                 | 32038             | 4.09                 | 1.4E-01                                       | X74773.1                 | NT                            | P.salina plasmid gene ecyY  |
| 12574                  | 25390                 |                   | 3.28                 | 1.4E-01                                       | 11868117                 | NT                            | Rattus norvegicus desmin (Des), mRNA  |
| 12605                  | 25405                 |                   | 1.71                 | 1.4E-01                                       | BE084835.2               | EST_HUMAN                     | 601658480R1 NIH_MGC_89 Homo sapiens cDNA clone IMAGE:3885671 3'   |
| 12627                  | 26175                 |                   | 2.83                 | 1.4E-01                                       | BE519802.1               | EST_HUMAN                     | 601315538F1 NIH_MGC_8 Homo sapiens cDNA clone IMAGE:3834328 5'  |
| 12724                  | 25482                 |                   | 7.52                 | 1.4E-01                                       | AF083221.1               | NT                            | Fugu rubripes putative neurotransmitter receptors, YDR140w homodog, and glycylamide ribonucleotide transferase (GART) genes, complete cds   |
| 12742                  | 25483                 |                   | 4.02                 | 1.4E-01                                       | D84004.1                 | NT                            | Synechocystis sp. PCC6803 complete genome, 23/27, 2888767-3002865   |
| 12834                  | 26183                 |                   | 3.2                  | 1.4E-01                                       | P10447                   | SWISSPROT                     | TYROSINE-PROTEIN KINASE TRANSFORMING PROTEIN ABL  |
| 12928                  | 25812                 |                   | 1.45                 | 1.4E-01                                       | X69192.1                 | NT                            | V.plantifolia mRNA for methyltransferase  |
| 13084                  | 25977                 |                   | 3.36                 | 1.4E-01                                       | D82863.1                 | NT                            | Mus musculus mRNA for prolidase, complete cds   |
| 13178                  | 25765                 |                   | 1.68                 | 1.4E-01                                       | AW377898.1               | EST_HUMAN                     | MRO-HT0208-221299-204-c08 HT0208 Homo sapiens cDNA  |
| 332                    | 13546                 | 26578             | 2.27                 | 1.3E-01                                       | 4758467                  | NT                            | Homo sapiens G protein-coupled receptor 50 (GPR50) mRNA   |
| 332                    | 13546                 | 26577             | 2.27                 | 1.3E-01                                       | 4758467                  | NT                            | Homo sapiens G protein-coupled receptor 50 (GPR50) mRNA   |
| 542                    | 13735                 | 26759             | 1.88                 | 1.3E-01                                       | AB013139.1               | NT                            | Homo sapiens gene for NBS1, complete cds  |
| 653                    | 13839                 | 26866             | 2.43                 | 1.3E-01                                       | AJ277606.1               | NT                            | Human calicivirus HUINLV/Girlington/83/UK RNA for capsid protein (ORF2), strain HUINLV/Girlington/83/UK   |
| 653                    | 13839                 | 26867             | 2.43                 | 1.3E-01                                       | AJ277606.1               | NT                            | Human calicivirus HUINLV/Girlington/83/UK RNA for capsid protein (ORF2), strain HUINLV/Girlington/83/UK   |
| 867                    | 14043                 | 27108             | 1.55                 | 1.3E-01                                       | X63330.1                 | NT                            | P.dumerilii histone gene cluster for core histones H2A, H2B, H3 and H4  |
| 917                    | 14082                 | 27157             | 1.26                 | 1.3E-01                                       | AF139518.1               | NT                            | Rattus norvegicus A-kinase anchor protein mRNA, complete cds  |
| 1052                   | 14218                 | 27274             | 2.14                 | 1.3E-01                                       | AL117078.1               | NT                            | Borrelia burgdorferi strain T4 cDNA library under conditions of nitrogen deprivation  |
| 1151                   | 14315                 |                   | 2.04                 | 1.3E-01                                       | AL116265.1               | NT                            | Borrelia burgdorferi strain T4 cDNA library under conditions of nitrogen deprivation  |
| 1242                   | 14401                 | 27462             | 1.67                 | 1.3E-01                                       | AV1712467.1              | EST_HUMAN                     | AV1712467 DCA Homo sapiens cDNA clone DCAAF05 5'  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 1475                   | 14628                 |                   | 0.97                 | 1.3E-01                                       | AF146277.1               | NT                            | Homo sapiens adapter protein CMS mRNA, complete cds  |
| 1805                   | 15048                 | 28159             | 1.02                 | 1.3E-01                                       | 6880957                  | NT                            | Mus musculus procollagen, type XI, alpha 1 (Col11a1), mRNA   |
| 2014                   | 15154                 | 28259             | 2.73                 | 1.3E-01                                       | AL117078.1               | NT                            | Bodylia chinensis strain T4 cDNA library under conditions of nitrogen deprivation  |
|                        |                       |                   |                      |   |                          |                               | Rhodospirillum rubrum acidophila pucA5, pucA6, pucA7, pucA8 and pucC<br>genes and ORF151   |
| 2239                   | 15372                 |                   | 1.09                 | 1.3E-01                                       | AJ243578.1               | NT                            | RC4-ST0173-191089-032-412 ST0173 Homo sapiens cDNA   |
| 2364                   | 15495                 |                   | 1.38                 | 1.3E-01                                       | AW612104.1               | EST_HUMAN                     | Archaeoglobus fulgidus section 91 of 172 of the complete genome  |
| 2455                   | 15583                 |                   | 3.31                 | 1.3E-01                                       | AE001018.1               | NT                            | Carcassius auratus keratin type I mRNA, complete cds   |
| 2653                   | 15776                 | 28889             | 2.78                 | 1.3E-01                                       | M86918.1                 | NT                            | Homo sapiens transcription factor KHM enhancer 3, JM11 protein, JM4 protein, JM5 protein, T64 protein, JM10 protein, A4 differentiation-dependent protein, triple LIM domain protein 6, and synaptophysin genes, complete cds; and L-type calcium channel $\alpha$ |
| 3440                   | 16808                 | 28628             | 1.21                 | 1.3E-01                                       | AF196779.1               | NT                            | Bovine branched chain alpha-keto acid dihydrolipoyl transacylase mRNA, complete cds  |
| 3539                   | 16704                 | 29715             | 1.11                 | 1.3E-01                                       | M21572.1                 | NT                            | Pyrococcus horikoshii OT3 genomic DNA, 1-287000 nt. position (177)   |
| 3816                   | 16976                 | 29679             | 0.85                 | 1.3E-01                                       | AP000001.1               | NT                            | Pyrococcus horikoshii OT3 genomic DNA, 1-287000 nt. position (177)   |
| 3816                   | 16976                 | 29680             | 0.85                 | 1.3E-01                                       | AP000001.1               | NT                            | Homo sapiens DD4 gene for dihydrolipoyl transacylase 4 (AKR1C4), exon 2  |
| 3822                   | 16982                 | 29685             | 1.55                 | 1.3E-01                                       | AB032169.1               | NT                            | Rattus norvegicus Fibrinogen, gamma polypeptide (Fgg), mRNA  |
| 3905                   | 17064                 | 30063             | 0.86                 | 1.3E-01                                       | 6978940                  | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 77  |
| 4098                   | 17251                 |                   | 1.08                 | 1.3E-01                                       | AL161581.2               | NT                            | Human calicivirus HUJLV/Girlington/83/UK RNA for capsid protein (ORF2), strain HUJLV/Girlington/83/UK  |
| 4162                   | 13839                 | 28866             | 0.88                 | 1.3E-01                                       | AJ277606.1               | NT                            | Human calicivirus HUJLV/Girlington/83/UK RNA for capsid protein (ORF2), strain HUJLV/Girlington/83/UK  |
| 4162                   | 13839                 | 28867             | 0.88                 | 1.3E-01                                       | AJ277606.1               | NT                            | Human calicivirus HUJLV/Girlington/83/UK RNA for capsid protein (ORF2), strain HUJLV/Girlington/83/UK  |
| 4257                   | 17402                 |                   | 0.82                 | 1.3E-01                                       | AF020713.1               | NT                            | Bacteriophage SPBc2 complete genome  |
| 4274                   | 17419                 |                   | 3.74                 | 1.3E-01                                       | AW364341.1               | EST_HUMAN                     | QV9-DT0018-081289-036-03 DT0018 Homo sapiens cDNA  |
| 4281                   | 17426                 | 30416             | 1.82                 | 1.3E-01                                       | AF028805.1               | NT                            | Schistosoma mansoni fructose biphosphate aldolase mRNA, complete cds   |
| 4302                   | 17445                 | 30431             | 21.62                | 1.3E-01                                       | AW273741.1               | EST_HUMAN                     | XV23110.X1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2813896 3'  |
| 4434                   | 17574                 |                   | 1.19                 | 1.3E-01                                       | AL163280.2               | NT                            | Homo sapiens chromosome 21 segment HS21C080  |
| 4601                   | 17738                 | 30717             | 0.61                 | 1.3E-01                                       | M21672.1                 | NT                            | Bovine branched chain alpha-keto acid dihydrolipoyl transacylase mRNA, complete cds  |
| 4656                   | 17782                 | 30778             | 2.54                 | 1.3E-01                                       | BE272339.1               | EST_HUMAN                     | 601128098F1 NIH_MGC_9 Homo sapiens cDNA clone IMAGE:2880083 5'   |
| 4748                   | 17883                 | 30863             | 0.73                 | 1.3E-01                                       | BF078654.1               | EST_HUMAN                     | 602154308F1 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:4295544 5'  |
| 5314                   | 18431                 | 31401             | 0.78                 | 1.3E-01                                       | AP000005.1               | NT                            | Pyrococcus horikoshii OT3 genomic DNA, 994001-1166000 nt. position (617)   |
|                        |                       |                   |                      |   |                          |                               | ha07606.x1 NCI_CGAP_Kid12 Homo sapiens cDNA clone IMAGE:2872979 3' similar to contains L1.b1 L1  |
| 5440                   | 18640                 | 31619             | 1.01                 | 1.3E-01                                       | AW468888.1               | EST_HUMAN                     | L1 repetitive element;   |
| 5478                   | 18677                 | 31690             | 1.83                 | 1.3E-01                                       | AW804417.1               | EST_HUMAN                     | QV0-UM0083-100400-189-006 UM0083 Homo sapiens cDNA   |
| 5618                   | 18812                 |                   | 0.92                 | 1.3E-01                                       | AF107793.1               | NT                            | Emeticella nidulans DNA-dependent RNA polymerase II RPB140 (RPB2) gene, partial cds  |

Page 113 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 6702                   | 18835                 |                   | 0.87                 | 1.3E-01                                       | AF058880.1               | NT                            | Hepatitis C Virus 68_CL10 genome polyprotein gene, partial cds   |
| 6842                   | 18032                 | 32338             | 0.72                 | 1.3E-01                                       | BF210920.1               | EST_HUMAN                     | 601874591F1 NIH_MGC_54 Homo sapiens cDNA clone IMAGE:4101119 5'  |
| 6107                   | 19287                 | 32621             | 0.58                 | 1.3E-01                                       | BF527281.1               | EST_HUMAN                     | 602039337F2 NCI_CGAP_Brn87 Homo sapiens cDNA clone IMAGE:4177233 5'  |
| 6107                   | 19287                 | 32622             | 0.58                 | 1.3E-01                                       | BF527281.1               | EST_HUMAN                     | 602039337F2 NCI_CGAP_Brn87 Homo sapiens cDNA clone IMAGE:4177233 5'  |
| 6812                   | 19772                 | 33163             | 18.92                | 1.3E-01                                       | AB031326.1               | NT                            | Schistosoma haematobium pomb gene for Alp41, complete cds  |
| 6898                   | 18856                 | 33246             | 2.28                 | 1.3E-01                                       | X88891.1                 | NT                            | C.jacchus Intron 4 of visual pigment gene (red allele)   |
| 6927                   | 20242                 |                   | 0.74                 | 1.3E-01                                       | W26367.1                 | EST_HUMAN                     | 2833 Human retina cDNA randomly primed sublibrary Homo sapiens cDNA  |
| 6974                   | 20202                 | 33828             | 0.7                  | 1.3E-01                                       | BE782926.1               | EST_HUMAN                     | 601465957F1 NIH_MGC_67 Homo sapiens cDNA clone IMAGE:3868079 5'  |
| 6974                   | 20202                 | 33829             | 0.7                  | 1.3E-01                                       | BE782926.1               | EST_HUMAN                     | 601465957F1 NIH_MGC_67 Homo sapiens cDNA clone IMAGE:3868079 5'  |
| 7155                   | 20289                 |                   | 0.74                 | 1.3E-01                                       | BF528580.1               | EST_HUMAN                     | 602044345F1 NCI_CGAP_Brn87 Homo sapiens cDNA clone IMAGE:4181868 5'  |
| 7412                   | 20490                 |                   | 1.97                 | 1.3E-01                                       | H48694.1                 | EST_HUMAN                     | y33ab02.1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:207075 5'  |
| 8146                   | 21238                 |                   | 0.70                 | 1.3E-01                                       | BE272339.1               | EST_HUMAN                     | 601126095F1 NIH_MGC_9 Homo sapiens cDNA clone IMAGE:2990063 5'   |
| 8160                   | 21242                 | 34762             | 1.08                 | 1.3E-01                                       | 11423294                 | NT                            | Homo sapiens PRO0811 protein (PRO0811), mRNA   |
| 8182                   | 21274                 | 34797             | 1.32                 | 1.3E-01                                       | BF690522.1               | EST_HUMAN                     | 602187015T1 NIH_MGC_49 Homo sapiens cDNA clone IMAGE:4286074 3'  |
| 8469                   | 21650                 | 35080             | 0.86                 | 1.3E-01                                       | 11421558                 | NT                            | Homo sapiens TED protein (TED), mRNA   |
| 8540                   | 21621                 |                   | 4.24                 | 1.3E-01                                       | Z74102.1                 | NT                            | S.cerevisiae chromosome IV reading frame ORF YDL054c   |
| 8580                   | 21661                 |                   | 4.98                 | 1.3E-01                                       | 8923919                  | NT                            | Homo sapiens core histone macroH2A2.2 (MACROH2A2), mRNA  |
| 8725                   | 21805                 | 35342             | 1.28                 | 1.3E-01                                       | BF690522.1               | EST_HUMAN                     | 602187015T1 NIH_MGC_49 Homo sapiens cDNA clone IMAGE:4286074 3'  |
| 9149                   | 22227                 | 35770             | 0.57                 | 1.3E-01                                       | R11172.1                 | EST_HUMAN                     | y39g11.1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:129284 5' similar to<br>SP:RL2B_RAT P29316 60S RIBOSOMAL PROTEIN; |
| 9149                   | 22227                 | 35771             | 0.57                 | 1.3E-01                                       | R11172.1                 | EST_HUMAN                     | y39g11.1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:129284 5' similar to<br>SP:RL2B_RAT P29316 60S RIBOSOMAL PROTEIN; |
| 9420                   | 22494                 | 36060             | 0.69                 | 1.3E-01                                       | 11068003                 | NT                            | Plutella xylostella granulovirus, complete genome  |
| 9420                   | 22494                 | 36061             | 0.69                 | 1.3E-01                                       | 11068003                 | NT                            | Plutella xylostella granulovirus, complete genome  |
| 9672                   | 22834                 | 36204             | 4.19                 | 1.3E-01                                       | AF023126.1               | NT                            | Oryctolagus cuniculus H+K<-ATPase alpha 2c subunit mRNA, complete cds  |
| 9873                   | 23012                 |                   | 0.73                 | 1.3E-01                                       | N89348.1                 | EST_HUMAN                     | J7837F Human fetal heart, Lambda ZAP Express Homo sapiens cDNA clone J7837 5' similar to B-CELL<br>RECEPTOR ASSOCIATED PROTEIN (BAP) 29  |
| 10257                  | 23262                 |                   | 1.07                 | 1.3E-01                                       | 8363940                  | NT                            | Rattus norvegicus peptidyl arginine deiminase, type IV (Pdi4), mRNA  |
| 10335                  | 23370                 | 36960             | 0.95                 | 1.3E-01                                       | AW861688.1               | EST_HUMAN                     | MR2-C10222-201069-001-e01 C10222 Homo sapiens cDNA   |
| 10603                  | 23604                 | 37244             | 1.08                 | 1.3E-01                                       | AL103246.2               | NT                            | Homo sapiens chromosome 21 segment HS21C046  |
| 10743                  | 23776                 | 37389             | 0.65                 | 1.3E-01                                       | AU121237.1               | EST_HUMAN                     | AU121237 HEMBB1 Homo sapiens cDNA clone HEMBB1002387 5'  |
| 10797                  | 23830                 | 37454             | 0.45                 | 1.3E-01                                       | AW247838.1               | EST_HUMAN                     | 2820631.3 prime NIH_MGC_7 Homo sapiens cDNA clone IMAGE:2820637 3'   |
| 10988                  | 23963                 |                   | 2.31                 | 1.3E-01                                       | BF330898.1               | EST_HUMAN                     | MR4-BT0358-130700-010-108 BT0358 Homo sapiens cDNA   |
| 11455                  | 24515                 |                   | 1.34                 | 1.3E-01                                       | BF092708.1               | EST_HUMAN                     | MR4-TN0112-126900-102-e08 TN0112 Homo sapiens cDNA   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 11629                  | 24595                 |                   | 3.2                  | 1.3E-01                                       | 6871745                  | NT                            | Mus musculus cofilin 2, muscle (Cif2), mRNA  |
| 11616                  | 24607                 | 38354             | 2.42                 | 1.3E-01                                       | BF677328.1               | EST_HUMAN                     | 602087045F1 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:4251948 5'  |
| 11616                  | 24607                 | 38355             | 2.42                 | 1.3E-01                                       | BF677328.1               | EST_HUMAN                     | 602087045F1 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:4251948 5'  |
| 11805                  | 24683                 | 38581             | 7.96                 | 1.3E-01                                       | BE279449.1               | EST_HUMAN                     | 601158032F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3504804 5'  |
| 12000                  | 24985                 |                   | 1.41                 | 1.3E-01                                       | AF912836.1               | NT                            | Thermococcus litoralis trehalose/maltose transporter operon including trehalose/maltose binding protein (malE) and inner membrane proteins MalF (malF) and MalG (malG) genes, complete cds |
| 12023                  | 25007                 | 38708             | 1.72                 | 1.3E-01                                       | BE619364.1               | EST_HUMAN                     | 601473366F1 NIH_MGC_86 Homo sapiens cDNA clone IMAGE:3978208 5'  |
| 12062                  | 25033                 | 38739             | 1.52                 | 1.3E-01                                       | BF883555.1               | EST_HUMAN                     | 602139760F1 NIH_MGC_48 Homo sapiens cDNA clone IMAGE:4300883 5'  |
| 12398                  | 25279                 | 32080             | 2.13                 | 1.3E-01                                       | BE618346.1               | EST_HUMAN                     | 601482741F1 NIH_MGC_87 Homo sapiens cDNA clone IMAGE:3866003 5'  |
| 12543                  | 25368                 |                   | 6.39                 | 1.3E-01                                       | AJ242780.1               | NT                            | Gallus gallus acyl1 gene for lysozyme, exons 1-3   |
| 12984                  | 25627                 |                   | 1.31                 | 1.3E-01                                       | AB026829.1               | NT                            | Ephydra fluvialis mRNA for sALK-8, complete cds  |
| 12995                  | 25647                 |                   | 1.87                 | 1.3E-01                                       | AW001114.1               | EST_HUMAN                     | wu24d09.x1 Scores: Dictyosphaera, colon_NHCD Homo sapiens cDNA clone IMAGE:2520977 3' similar to TR:Q60287 O60287 KIAA0639 PROTEIN.;   |
| 394                    | 13631                 | 26688             | 13.87                | 1.2E-01                                       | A421744.1                | EST_HUMAN                     | tf39602.x1 NCI_CGAP_Brnc23 Homo sapiens cDNA clone IMAGE:2086539 3' similar to gb:U05760_mari  |
| 437                    | 13237                 |                   | 1.42                 | 1.2E-01                                       | U68912.1                 | NT                            | ANNEXIN V (HUMAN);   |
| 561                    | 13753                 |                   | 3.82                 | 1.2E-01                                       | AF039442.1               | NT                            | Dictyostellum discoideum ORF: DG1016 gene, partial cds   |
| 1408                   | 14562                 | 27636             | 2.32                 | 1.2E-01                                       | AU149146.1               | EST_HUMAN                     | Homo sapiens colon cancer antigen NY-CO-45 mRNA, partial cds   |
| 1408                   | 14562                 | 27637             | 2.32                 | 1.2E-01                                       | AU149146.1               | EST_HUMAN                     | AU149148 NT2RM4 Homo sapiens cDNA clone NT2RM4001691 3'  |
| 1414                   | 14568                 |                   | 3.35                 | 1.2E-01                                       | AV735249.1               | EST_HUMAN                     | AU149148 NT2RM4 Homo sapiens cDNA clone NT2RM4001691 3'  |
| 1419                   | 14672                 |                   | 0.94                 | 1.2E-01                                       | AL445068.1               | NT                            | AV735249 cda Homo sapiens cDNA clone cdaAAB11 5'   |
| 1536                   | 14859                 |                   | 0.94                 | 1.2E-01                                       | AA897474.1               | EST_HUMAN                     | Thermoplasma acidophilum complete genome; segment 4/5  |
| 1680                   | 14812                 | 27887             | 1.1                  | 1.2E-01                                       | Q14834                   | SWISSPROT                     | cl48c09.x1 Scores: NFL_T_GBC S1 Homo sapiens cDNA clone IMAGE:1460584 3' similar to TR:Q16871  |
| 1682                   | 14834                 | 27919             | 2.88                 | 1.2E-01                                       | A1265402.1               | EST_HUMAN                     | Q16871 ANTI-MULLERIAN HORMONE TYPE II RECEPTOR PRECURSOR.;   |
| 1808                   | 14957                 |                   | 25.75                | 1.2E-01                                       | X69211.1                 | NT                            | NUCLEAR FACTOR OF ACTIVATED T-CELLS, CYTOPLASMIC 4 (T CELL TRANSCRIPTION FACTOR NFAT3) (NF-ATC4)   |
| 1970                   | 15113                 |                   | 1.66                 | 1.2E-01                                       | AW440388.1               | EST_HUMAN                     | q6809.x1 NCI_CGAP_E602 Homo sapiens cDNA clone IMAGE:1900553 3'  |
| 2253                   | 15389                 | 28514             | 1.66                 | 1.2E-01                                       | BF249480.1               | EST_HUMAN                     | H. sapiens DNA for endogenous retroviral like element  |
| 2450                   | 15579                 |                   | 0.99                 | 1.2E-01                                       | Z21405.1                 | EST_HUMAN                     | UI-H-B13-adj-e-10-0-U1.s1 NCI_CGAP_Sub55 Homo sapiens cDNA clone IMAGE:2734554 3'  |
| 2656                   | 15779                 | 28893             | 1.84                 | 1.2E-01                                       | AW989556.1               | EST_HUMAN                     | 601821567F1 NIH_MGC_62 Homo sapiens cDNA clone IMAGE:4046224 5'  |
| 2905                   | 16083                 | 29098             | 1.16                 | 1.2E-01                                       | U18018.1                 | EST_HUMAN                     | HSA:AAEBZT TEST1, Human adult Testis tissue Homo sapiens cDNA  |
| 2987                   | 16143                 | 28162             | 1.9                  | 1.2E-01                                       | AJ720470.1               | EST_HUMAN                     | QV3-BN0046-220300-128-F10 BN0046 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | Human E1A enhancer binding protein (E1A-F) mRNA, partial cds   |
|                        |                       |                   |                      |   |                          |                               | ss80c09.x1 Barcode colon HPLRB7 Homo sapiens cDNA clone IMAGE:2335024 3' similar to gb:U05095  |
|                        |                       |                   |                      |   |                          |                               | 60S RIBOSOMAL PROTEIN L30 (HUMAN);   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 3001                   | 16177                 | 29198             | 3.44                 | 1.2E-01                                       | M16894.1                 | NT                            | Human creatine kinase-B mRNA, complete cds   |
| 3068                   | 16244                 | 29266             | 0.91                 | 1.2E-01                                       | X56882.1                 | NT                            | Wheat mRNA for a group 3 late embryogenesis abundant protein (LEA)   |
| 3302                   | 16476                 | 29498             | 2.52                 | 1.2E-01                                       | AW370688.1               | EST_HUMAN                     | QV1-3T0259-26T099-021-405 BT0259 Homo sapiens cDNA   |
| 3330                   | 16503                 |                   | 0.74                 | 1.2E-01                                       | U97800.1                 | NT                            | Methanococcus jannaschii section 142 of 160 of the complete genome   |
| 3598                   | 16733                 |                   | 0.66                 | 1.2E-01                                       | Z99118.1                 | NT                            | Bacillus subtilis complete genome (section 15 of 21); from 2795131 to 3013540  |
| 3610                   | 16774                 | 29789             | 1.12                 | 1.2E-01                                       | X56882.1                 | NT                            | Wheat mRNA for a group 3 late embryogenesis abundant protein (LEA)   |
| 3610                   | 16774                 | 29789             | 1.12                 | 1.2E-01                                       | X56882.1                 | NT                            | Wheat mRNA for a group 3 late embryogenesis abundant protein (LEA)   |
| 3694                   | 16733                 |                   | 1.22                 | 1.2E-01                                       | Z99118.1                 | NT                            | Bacillus subtilis complete genome (section 15 of 21); from 2795131 to 3013540  |
| 3895                   | 17024                 |                   | 0.95                 | 1.2E-01                                       | BF128551.1               | EST_HUMAN                     | 601810788R1 NIH_MGC_46 Homo sapiens cDNA clone IMAGE:4063668 3'  |
| 4298                   | 17441                 | 30428             | 2.1                  | 1.2E-01                                       | Z94265.1                 | NT                            | P. clarkei mRNA; repeat region (ID 2MR17)  |
| 4298                   | 17441                 | 30427             | 2.1                  | 1.2E-01                                       | Z94255.1                 | NT                            | P. clarkei mRNA; repeat region (ID 2MR17)  |
| 4431                   | 17571                 | 30552             | 0.59                 | 1.2E-01                                       | M15981.1                 | NT                            | Chicken neural cell-adhesion molecule (N-CAM) gene, exon 19  |
| 4942                   | 18072                 |                   | 1.94                 | 1.2E-01                                       | X73416.1                 | NT                            | W. suavis mitochondria ori   |
| 5364                   | 18567                 | 31433             | 0.89                 | 1.2E-01                                       | AA744369.1               | EST_HUMAN                     | try63c04.s1 NCL_CGAP_GC81 Homo sapiens cDNA clone IMAGE:1282850 3'   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens calcium channel alpha1E subunit (CACNA1E) gene, exons 7-49, and partial cds, alternatively spliced                                |
| 5415                   | 18617                 | 31591             | 0.98                 | 1.2E-01                                       | AF223391.1               | NT                            |  |
| 5425                   | 18826                 | 31601             | 2.5                  | 1.2E-01                                       | W33035.1                 | EST_HUMAN                     | 2c08d02.r1 Soares_papillary_tumor_NH-HPA Homo sapiens cDNA clone IMAGE:321699 5'   |
| 5484                   | 18883                 | 31700             | 1.65                 | 1.2E-01                                       | Z98266.1                 | NT                            | Homo sapiens gene encoding plakophilin (exons 1-13)  |
| 5622                   | 18816                 | 31865             | 1.14                 | 1.2E-01                                       | Z48234.1                 | NT                            | M. domestica Barkh. Granny Smith adh mRNA for alcohol dehydrogenase  |
| 6329                   | 18500                 | 32858             | 1.9                  | 1.2E-01                                       | BE620945.1               | EST_HUMAN                     | 601493518F1 NIH_MGC_70 Homo sapiens cDNA clone IMAGE:3895613 5'  |
| 6377                   | 19546                 | 32803             | 0.81                 | 1.2E-01                                       | PT0842                   | SWISSPROT                     | MATING-TYPE P-SPECIFIC POLYPEPTIDE PI  |
| 6408                   | 19596                 | 32862             | 2.28                 | 1.2E-01                                       | AW845275.1               | EST_HUMAN                     | IL0-CT0031-221089-113-e04 CT0031 Homo sapiens cDNA   |
| 6493                   | 19659                 | 33022             | 1.62                 | 1.2E-01                                       | M26925.1                 | NT                            | Mouse galactosyltransferase mRNA, complete cds   |
| 6661                   | 19723                 | 33101             | 0.58                 | 1.2E-01                                       | AA747635.1               | EST_HUMAN                     | nc85c01.s1 NCL_CGAP_GC81 Homo sapiens cDNA clone IMAGE:1269024 3'  |
| 6785                   | 19940                 | 33338             | 1.18                 | 1.2E-01                                       | BF347885.1               | EST_HUMAN                     | 602023112F1 NCL_CGAP_Bm87 Homo sapiens cDNA clone IMAGE:4168388 5'   |
| 7154                   | 20288                 | 33731             | 0.64                 | 1.2E-01                                       | H47789.1                 | EST_HUMAN                     | yp80f04.r1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:193759 5'   |
| 7154                   | 20288                 | 33732             | 0.64                 | 1.2E-01                                       | H47789.1                 | EST_HUMAN                     | yp80f04.r1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:193759 5'   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens partial ILF3 gene for interleukin enhancer binding factor 3 (alternative transcripts ddbp76, ddbp76 gamma, ddbp76 alpha and ILF3) |
| 7772                   | 20829                 | 34320             | 0.62                 | 1.2E-01                                       | AJ271741.1               | NT                            |  |
| 8076                   | 21168                 |                   | 1.13                 | 1.2E-01                                       | BE007072.1               | EST_HUMAN                     | FM3-BN0137-290300-002-009 BN0137 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | wc89g03.x1 NCL_CGAP_GC8 Homo sapiens cDNA clone IMAGE:2328804 3' similar to SW:GST2_HUMAN  |
| 8149                   | 21231                 | 34751             | 2.45                 | 1.2E-01                                       | AI913753.1               | EST_HUMAN                     | Q89795 MICROSOMAL GLUTATHIONE S-TRANSFERASE II;  |
| 8197                   | 21278                 | 34801             | 0.64                 | 1.2E-01                                       | Q02369                   | SWISSPROT                     | NADH-UBIQUINONE OXIDOREDUCTASE B22 SUBUNIT (COMPLEX I-B22) (CH-B22)  |
| 8504                   | 21585                 | 35119             | 0.58                 | 1.2E-01                                       | AI832581.1               | EST_HUMAN                     | sa17b10.x1 Barstead cdon HPLRB7 Homo sapiens cDNA clone IMAGE:2377435 3'   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST-E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 8590                   | 21671                 |                   | 10.76                | 1.2E-01                                       | AW083952.1               | EST_HUMAN                     | pc49407.x1 NCJ_CGAP_Eso2 Homo sapiens cDNA clone IMAGE:2587597 3' similar to gb:M13452 LAMIN A (HUMAN);   |
| 8611                   | 21691                 |                   | 3.78                 | 1.2E-01                                       | AF053772.1               | NT                            | Staphylococcus aureus plasmid pSK23 putative recombinase Sin (sh) gene, partial cds; and transcriptional regulator QacR (qacR) and multidrug efflux protein QacB (qacB) genes, complete cds |
| 8649                   | 21729                 | 36286             | 1.09                 | 1.2E-01                                       | J03956.1                 | NT                            | N. crassa vacuolar ATPase 57-Kd subunit (vma-2) gene, complete cds  |
| 8849                   | 21729                 | 36287             | 1.09                 | 1.2E-01                                       | J03956.1                 | NT                            | N. crassa vacuolar ATPase 57-Kd subunit (vma-2) gene, complete cds  |
| 8800                   | 21879                 |                   | 1.02                 | 1.2E-01                                       | AJ271736.1               | NT                            | Homo sapiens Xq pseudautosomal region; segment 2/2  |
| 8887                   | 21986                 |                   | 1.44                 | 1.2E-01                                       | U32714.1                 | NT                            | Haemophilus influenzae Rd section 29 of 163 of the complete genome  |
| 8920                   | 21989                 |                   | 0.77                 | 1.2E-01                                       | X15191.1                 | NT                            | M. musculus DNA fragment of Apolipoprotein B gene   |
| 9771                   | 22767                 | 36338             | 1.3                  | 1.2E-01                                       | X77981.1                 | NT                            | S. cerevisiae HXT5 gene   |
| 10208                  | 23245                 | 36335             | 0.9                  | 1.2E-01                                       | AV710857.1               | EST_HUMAN                     | AV710857 Cu Homo sapiens cDNA clone CUAKE08 5'  |
| 11125                  | 24197                 |                   | 2.55                 | 1.2E-01                                       | D26184.1                 | NT                            | Yeast MPT5 gene for suppressor protein, complete cds  |
| 11320                  | 24383                 |                   | 3.03                 | 1.2E-01                                       | BE962324.2               | EST_HUMAN                     | 6016557851 NIH_MGC 65 Homo sapiens cDNA clone IMAGE:3846283 3'  |
| 11414                  | 24476                 |                   | 1.73                 | 1.2E-01                                       | BF314481.1               | EST_HUMAN                     | 6016557851 NIH_MGC 65 Homo sapiens cDNA clone IMAGE:4130103 5'  |
| 11593                  | 24589                 | 38284             | 2.78                 | 1.2E-01                                       | AF180483.1               | NT                            | Homo sapiens dynein intermediate chain DNAIL1 (DNAIL1) gene, exon 17  |
| 11593                  | 24646                 | 38328             | 1.72                 | 1.2E-01                                       | R40249.1                 | EST_HUMAN                     | Y/80-c02 s1 Soares Infant brain (NIH) Homo sapiens cDNA clone IMAGE:28880 3'  |
| 11798                  | 24788                 |                   | 2.47                 | 1.2E-01                                       | M65109.1                 | NT                            | Rabbit glycogen-associated protein phosphatase regulatory subunit (RG1) mRNA, complete cds  |
| 12161                  | 26128                 |                   | 2.09                 | 1.2E-01                                       | AV699333.1               | EST_HUMAN                     | Homo sapiens Xq pseudautosomal region; segment 2/2  |
| 12522                  | 25355                 |                   | 4.37                 | 1.2E-01                                       | AJ271736.1               | NT                            | MACROPHAGE-STIMULATING PROTEIN RECEPTOR PRECURSOR (MSP RECEPTOR) (P185-RON) (CDW138) (CD138 ANTIGEN)  |
| 12614                  | 26126                 | 31544             | 2                    | 1.2E-01                                       | Q04912                   | SWISSPROT                     | CDW138 (CD138 ANTIGEN)  |
| 12732                  | 25488                 |                   | 1.65                 | 1.2E-01                                       | AF188892.1               | NT                            | Drosophila melanogaster strain Oregon R potential RNA-binding protein gene, complete cds; and syntactin gene, partial cds   |
| 12734                  | 13753                 |                   | 18.32                | 1.2E-01                                       | AF039442.1               | NT                            | Homo sapiens colon cancer antigen NY-CO-45 mRNA, partial cds  |
| 12863                  | 25574                 |                   | 1.4                  | 1.2E-01                                       | X63961.1                 | NT                            | R. norvegicus NFR88 gene for 68kDa neurofilament  |
| 12868                  | 25629                 | 31861             | 4.89                 | 1.2E-01                                       | AI239903.1               | EST_HUMAN                     | gn20g05.x1 NCJ_CGAP_Lu5 Homo sapiens cDNA clone IMAGE:1898840 3'  |
| 12892                  | 25844                 |                   | 3.46                 | 1.2E-01                                       | L10187.1                 | NT                            | Xenopus laevis integrin alpha 3 subunit mRNA, partial cds   |
| 12907                  | 26050                 |                   | 6.44                 | 1.2E-01                                       | O98433                   | SWISSPROT                     | GYCLIN T  |
| 13031                  | 25878                 | 31060             | 1.47                 | 1.2E-01                                       | AE004428.1               | NT                            | Vibrio cholerae chromosome II, section 85 of 93 of the complete chromosome  |
| 13221                  | 25795                 |                   | 1.23                 | 1.2E-01                                       | AF090141.1               | NT                            | Chrysobacterium marisnigricum GDB-1 carboxypeptidase gene, complete cds   |
| 578                    | 13770                 | 26782             | 1.96                 | 1.1E-01                                       | AI591003.1               | EST_HUMAN                     | hm18d08.x1 NCJ_CGAP_Bm25 Homo sapiens cDNA clone IMAGE:2167968 3'   |
| 630                    | 13815                 | 26838             | 1.33                 | 1.1E-01                                       | AA569003.1               | EST_HUMAN                     | nm08g11.s1 NCJ_CGAP_Oo10 Homo sapiens cDNA clone IMAGE:1059620 3' similar to gb:X06985_mn1 HEME OXYGENASE 1 (HUMAN);  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Description   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 1079                   | 14245                 | 27302             | 1.81                 | 1.1E-01                                       | BF697308.1               | EST_HUMAN                     | 602129847F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:4288771 5'   |
| 1109                   | 14274                 |                   | 1.85                 | 1.1E-01                                       | AL161560.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 80   |
| 1186                   | 16031                 | 27405             | 3.67                 | 1.1E-01                                       | AW972198.1               | EST_HUMAN                     | EST1384142 MAGE resequences, MAGL Homo sapiens cDNA   |
| 1278                   | 14435                 | 27505             | 1.88                 | 1.1E-01                                       | D64004.1                 | NT                            | Synechocystis sp. PCC6803 complete genome, 23/27, 2888787-3002865   |
| 1549                   | 14701                 | 27780             | 2.75                 | 1.1E-01                                       | AU140963.1               | EST_HUMAN                     | AU140363 PLACE2 Homo sapiens cDNA clone PLACE2000403 5'   |
| 2255                   | 15388                 |                   | 1.73                 | 1.1E-01                                       | AJ069701.1               | NT                            | Homo sapiens mRNA for putative serine/threonine protein kinase, partial   |
| 2688                   | 15519                 |                   | 2.02                 | 1.1E-01                                       | 8755215                  | NT                            | Mus musculus pre T-cell antigen receptor alpha (Ptra), mRNA   |
| 2693                   | 15999                 |                   | 1.08                 | 1.1E-01                                       | 6878678                  | NT                            | Rattus norvegicus Procollagen II alpha 1 (Col2a1), mRNA   |
| 2633                   | 15756                 |                   | 1.27                 | 1.1E-01                                       | AW821808.1               | EST_HUMAN                     | RC0-ST0378-210100-032-g04 ST0378 Homo sapiens cDNA  |
| 2917                   | 16085                 | 29107             | 0.89                 | 1.1E-01                                       | S82418.1                 | NT                            | Interleukin-12 p35 subunit (Irfc), Genomic, 700 nt, segment 4 of 5  |
| 3098                   | 16274                 | 29288             | 0.81                 | 1.1E-01                                       | F03265.1                 | EST_HUMAN                     | HSC1RF022 normalized infant brain cDNA Homo sapiens cDNA clone c-1n02 3'  |
| 3422                   | 16591                 |                   | 1.55                 | 1.1E-01                                       | 8753231                  | NT                            | Mus musculus calcium channel, voltage-dependent, T type, alpha 1G subunit (Caena1g), mRNA   |
| 3508                   | 16876                 | 29685             | 2.09                 | 1.1E-01                                       | BE303186.1               | EST_HUMAN                     | 601308078F1 NIH_MGC_44 Homo sapiens cDNA clone IMAGE:3627066 5'   |
| 3540                   | 16705                 | 29716             | 1.47                 | 1.1E-01                                       | X82195.1                 | NT                            | Cretinhardt nuclear gene on linkage group XX  |
| 3580                   | 16745                 | 29783             | 0.71                 | 1.1E-01                                       | R96946.1                 | EST_HUMAN                     | y62g08.s1 Scores fetal liver spleen 1NFSL Homo sapiens cDNA clone IMAGE:200414 3' similar to contains   |
| 3673                   | 16836                 | 29848             | 0.7                  | 1.1E-01                                       | Y07696.1                 | NT                            | Alu repetitive element  |
| 3791                   | 16852                 |                   | 0.96                 | 1.1E-01                                       | P97384                   | SWISSPROT                     | A. Imnerius gene for transposase  |
| 3800                   | 16861                 | 29985             | 1.28                 | 1.1E-01                                       | X52708.1                 | NT                            | ANNEXIN XI (CALCYCLIN-ASSOCIATED ANNEXIN 50) (CAP-50)   |
| 4226                   | 17374                 | 30359             | 1.2                  | 1.1E-01                                       | AW819412.1               | EST_HUMAN                     | G. gallus gene encoding non-histone chromosomal protein HM/G-14b, exons 4 and 5   |
| 4226                   | 17374                 | 30360             | 1.2                  | 1.1E-01                                       | AW819412.1               | EST_HUMAN                     | MR3-ST0280-290100-025-g07 ST0280 Homo sapiens cDNA  |
| 4233                   | 17380                 |                   |                      |   |                          |                               | MR3-ST0280-290100-025-g07 ST0280 Homo sapiens cDNA  |
| 4397                   | 17510                 |                   | 0.83                 | 1.1E-01                                       | AF030001.1               | NT                            | Mus musculus major histocompatibility locus class III region: butyrophilin-like protein gene, partial cds;  |
| 4401                   | 17644                 | 30528             | 11.45                | 1.1E-01                                       | AF157086.1               | NT                            | Notch4, PBX2, RAGE, lysophosphatidic acid acyl transferase-alpha, palmitoyl-protein thioesterase 2 (PPT2), CREB-RP, and tenascin X (TNX) genes, complete> |
| 4782                   | 17897                 | 30877             | 0.76                 | 1.1E-01                                       | AW802056.1               | EST_HUMAN                     | Drosophila melanogaster klarsicht protein (klar) mRNA, complete cds   |
| 4853                   | 18083                 | 31059             | 0.82                 | 1.1E-01                                       | S44657.1                 | NT                            | U5-UM0070-020500-088-008 UM0070 Homo sapiens cDNA   |
| 5134                   | 17380                 |                   | 0.75                 | 1.1E-01                                       | AF030001.1               | NT                            | Tape-1 integral membrane protein TAPA-1 (Irfca, B cell lymphoma line 39C13, Genomic, 1973 nt, segment 1 of 7)   |
| 5787                   | 18879                 |                   | 2.59                 | 1.1E-01                                       | AA747218.1               | EST_HUMAN                     | A. Imnerius gene for transposase  |
|                        |                       |                   |                      |   |                          |                               | Mus musculus major histocompatibility locus class III region: butyrophilin-like protein gene, partial cds;  |
|                        |                       |                   |                      |   |                          |                               | Notch4, PBX2, RAGE, lysophosphatidic acid acyl transferase-alpha, palmitoyl-protein thioesterase 2 (PPT2), CREB-RP, and tenascin X (TNX) genes, complete> |
|                        |                       |                   |                      |   |                          |                               | nt78603.s1 NCI_CGAP_Ew1 Homo sapiens cDNA clone IMAGE:1288140 similar to contains Alu repetitive element; contains element MER35 repetitive element;      |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 5857                   | 19047                 | 32353             | 1.32                 | 1.1E-01                                       | AF020827.1               | NT                            | 6 Homo sapiens diacylglycerol kinase 3 (DAGK3) gene, exon 6  |
| 5894                   | 19082                 | 32383             | 0.87                 | 1.1E-01                                       | AL110985.1               | NT                            | Bdoryle chirensis strain T4 cDNA library under conditions of nitrogen deprivation  |
| 5927                   | 19113                 | 32425             | 0.98                 | 1.1E-01                                       | BF339518.1               | EST_HUMAN                     | 602039176F1 NCI_CGAP_Bm64 Homo sapiens cDNA clone IMAGE:4186818 5'   |
| 5927                   | 19113                 | 32426             | 0.98                 | 1.1E-01                                       | BF339518.1               | EST_HUMAN                     | 602039176F1 NCI_CGAP_Bm64 Homo sapiens cDNA clone IMAGE:4186818 5'   |
| 5938                   | 19144                 | 32459             | 1.70                 | 1.1E-01                                       | X68851.1                 | NT                            | S.pombe ste8 gene encoding protein kinase  |
| 5952                   | 19177                 | 32498             | 5.15                 | 1.1E-01                                       | M86533.1                 | NT                            | Providencia reifertii penicillin G amidase gene  |
| 6150                   | 19326                 | 32671             | 1.88                 | 1.1E-01                                       | AJ007973.1               | NT                            | Homo sapiens LGMD2B gene   |
| 6171                   | 19347                 | 32683             | 1.37                 | 1.1E-01                                       | BE769152.1               | EST_HUMAN                     | PM3-FT0024-130600-004-f12 FT0024 Homo sapiens cDNA   |
| 6181                   | 19387                 | 32716             | 7.73                 | 1.1E-01                                       | AW863698.1               | EST_HUMAN                     | RC3-CT0254-280989-011-e01 CT0254 Homo sapiens cDNA   |
| 6554                   | 19716                 | 33082             | 0.61                 | 1.1E-01                                       | AL163282.2               | NT                            | Homo sapiens chromosome 21 segment HS21C082  |
| 6582                   | 19724                 | 33102             | 1.52                 | 1.1E-01                                       | AF035746.1               | EST_HUMAN                     | AF035748 Human salivary gland cell line HSG Homo sapiens cDNA clone RL43   |
| 6602                   | 19702                 | 33150             | 0.84                 | 1.1E-01                                       | A1216307.1               | EST_HUMAN                     | qg76d06.x1 Soares_NFL_T_OBC_S1 Homo sapiens cDNA clone IMAGE:1841099 3'  |
| 6742                   | 19898                 | 33289             | 3.88                 | 1.1E-01                                       | O69035                   | SWISSPROT                     | ACETYL-COENZYME A SYNTHETASE (ACETATE-COA LIGASE) (ACYL-ACTIVATING ENZYME)   |
| 6843                   | 19906                 | 33684             | 2.73                 | 1.1E-01                                       | AF032922.1               | NT                            | Homo sapiens syntaxin 4 binding protein UNC-18c (UNC-18c) mRNA, complete cds   |
| 6834                   | 20249                 | 33684             | 2.74                 | 1.1E-01                                       | 11432372                 | NT                            | Homo sapiens phosphatidylinositol glycan, class B (PIGB), mRNA   |
| 7183                   | 20058                 | 33468             | 0.74                 | 1.1E-01                                       | AE002155.1               | NT                            | Ureaplasma urealyticum section 56 of 59 of the complete genome   |
| 7183                   | 20058                 | 33468             | 0.74                 | 1.1E-01                                       | AE002155.1               | NT                            | Ureaplasma urealyticum section 56 of 59 of the complete genome   |
| 7337                   | 26217                 |                   | 1.01                 | 1.1E-01                                       | BF382758.1               | EST_HUMAN                     | 601816624F1 NIH_MGC_56 Homo sapiens cDNA clone IMAGE:4050853 5'  |
| 7456                   | 25845                 | 34007             | 0.98                 | 1.1E-01                                       | AP000006.1               | NT                            | Pyrococcus horikoshii OT3 genomic DNA, 1168001-1485000 nt. position (8/7)  |
| 7706                   | 20771                 | 34255             | 7.51                 | 1.1E-01                                       | BF684628.1               | EST_HUMAN                     | 602140876F1 NIH_MGC_46 Homo sapiens cDNA clone IMAGE:4302019 5'  |
| 7706                   | 20771                 | 34256             | 7.51                 | 1.1E-01                                       | BF684628.1               | EST_HUMAN                     | 602140876F1 NIH_MGC_46 Homo sapiens cDNA clone IMAGE:4302019 5'  |
| 7833                   | 20688                 | 34391             | 2.16                 | 1.1E-01                                       | P41087                   | SWISSPROT                     | TRAB PROTEIN   |
| 7872                   | 20926                 |                   | 0.64                 | 1.1E-01                                       | Z14088.1                 | NT                            | B.subtilis gene encoding hypothetical polyketide synthase  |
| 7873                   | 20927                 | 34433             |                      |   |                          |                               | af31b06.s1 Soares_parathyroid_tumor_NbHFA Homo sapiens cDNA clone 1240403 3' similar to gic-J03483                             |
| 8155                   | 21237                 | 34758             | 1.58                 | 1.1E-01                                       | U67492.1                 | EST_HUMAN                     | CHROMOGHRANIN A PRECURSOR (HUMAN);   |
| 8403                   | 21484                 | 35012             | 1.66                 | 1.1E-01                                       | AA483574.1               | EST_HUMAN                     | Methanococcus jannaschii section 34 of 150 of the complete genome  |
| 8403                   | 21484                 | 35013             | 1.56                 | 1.1E-01                                       | AA483574.1               | EST_HUMAN                     | ih04g10.s1 NCI_CGAP_Thy1 Homo sapiens cDNA clone IMAGE:945382  |
| 8449                   | 21530                 | 35059             | 1.26                 | 1.1E-01                                       | X91233.1                 | NT                            | ih04g10.s1 NCI_CGAP_Thy1 Homo sapiens cDNA clone IMAGE:945382  |
| 8489                   | 21570                 |                   | 0.94                 | 1.1E-01                                       | AW817918.1               | EST_HUMAN                     | H.sapiens IL15 gene  |
| 8546                   | 21627                 | 35165             | 2.31                 | 1.1E-01                                       | AL134349.1               | EST_HUMAN                     | PM1-ST0270-080200-001-r09 ST0270 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | DKFZp547P194.1 547 (synonym: hibr1) Homo sapiens cDNA clone DKFZp547P194 5'  |
|                        |                       |                   |                      |   |                          |                               | Pedococcus acilactid H plasmid pSMB74 pediocin ACh production (pap) gene cluster papA, papB, papC and papD genes, complete cds |
| 9018                   | 22097                 | 35637             | 5.67                 | 1.1E-01                                       | U02482.1                 | NT                            |  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 9113                   | 22182                 | 35737             | 1.04                 | 1.1E-01                                       | AI807474.1               | EST_HUMAN                     | wf48c01.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2388616 3' similar to contains Alu repetitive element.  |
| 9210                   | 22288                 | 35830             | 0.5                  | 1.1E-01                                       | AF050081.1               | NT                            | Homo sapiens C16orf3 large protein mRNA, complete cds  |
| 9243                   | 22320                 | 35863             | 2.25                 | 1.1E-01                                       | AA182153.1               | EST_HUMAN                     | zp93b12.r1 Stratiotes muscicola 937209 Homo sapiens cDNA clone IMAGE:827743 5'   |
| 9243                   | 22320                 | 35864             | 2.26                 | 1.1E-01                                       | AA192163.1               | EST_HUMAN                     | zp93b12.r1 Stratiotes muscicola 937209 Homo sapiens cDNA clone IMAGE:827743 5'   |
| 9335                   | 22411                 | 35864             | 0.71                 | 1.1E-01                                       | Y12727.1                 | NT                            | P. furcatus partial dph5 gene and angf gene  |
| 9368                   | 22441                 | 36001             | 2.78                 | 1.1E-01                                       | T72873.1                 | EST_HUMAN                     | yd19h03.a1 Soares fetal liver spleen 1N1LS Homo sapiens cDNA clone IMAGE:108725 3' similar to gb:M81181 SODIUM/POTASSIUM-TRANSPORTING ATPASE BETA-2 (HUMAN); |
| 9392                   | 22467                 |                   | 0.63                 | 1.1E-01                                       | BE893260.1               | EST_HUMAN                     | 601436972F1 NIH_MGC_72 Homo sapiens cDNA clone IMAGE:3922048 5'  |
| 9622                   | 22677                 |                   | 0.99                 | 1.1E-01                                       | BE142303.1               | EST_HUMAN                     | CH3-H1T0142-271069-028-g11 HT0142 Homo sapiens cDNA  |
| 9666                   | 22746                 |                   | 2.33                 | 1.1E-01                                       | BF085149.1               | EST_HUMAN                     | MR2-GN0027-040900-005-e08 GN0027 Homo sapiens cDNA   |
| 10114                  | 23152                 |                   | 0.77                 | 1.1E-01                                       | AL161543.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 43  |
| 10410                  | 23445                 |                   | 1.23                 | 1.1E-01                                       | R80590.1                 | EST_HUMAN                     | y86a09.s1 Soares placenta Nb2HP Homo sapiens cDNA clone IMAGE:147084 3'  |
| 10544                  | 23579                 | 37188             | 1.28                 | 1.1E-01                                       | R80528.1                 | NT                            | Ceratitis capitata jojo retrotransposon gag-like, pol-like and env-like genes, complete cds  |
| 10914                  | 23987                 | 37631             | 1.38                 | 1.1E-01                                       | AF245277.1               | NT                            | Dicotylellum discoidium kinesin Unc104/KIF1a homolog (Unc104) mRNA, complete cds   |
| 11044                  | 16274                 | 29288             | 1.78                 | 1.1E-01                                       | R3265.1                  | EST_HUMAN                     | HSC1RF022 normalized infant brain cDNA Homo sapiens cDNA clone c-1n02 3'   |
| 11162                  | 24233                 |                   | 2.47                 | 1.1E-01                                       | AF169032.1               | NT                            | Carassius auratus actin beta A precursor, mRNA, complete cds   |
| 11300                  | 24388                 | 38007             | 3.11                 | 1.1E-01                                       | R23708.1                 | EST_HUMAN                     | yh3f12.r1 Soares placenta Nb2HP Homo sapiens cDNA clone IMAGE:131759 5' similar to contains Alu repetitive element; contains TAR1 repetitive element;        |
| 11483                  | 24542                 | 38212             | 2.6                  | 1.1E-01                                       | Z11910.1                 | NT                            | Z. mobilis lgt and lgt genes encoding RNA guanine transglycosylase and DNA ligase  |
| 11483                  | 24542                 | 38213             | 2.6                  | 1.1E-01                                       | Z11910.1                 | NT                            | Z. mobilis lgt and lgt genes encoding RNA guanine transglycosylase and DNA ligase  |
| 11510                  | 24568                 | 38245             | 1.69                 | 1.1E-01                                       | BE002074.1               | EST_HUMAN                     | 601576924F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3858688 5'  |
| 11586                  | 24639                 | 38319             | 3.21                 | 1.1E-01                                       | P17437                   | SWISSPROT                     | SKIN SECRETORY PROTEIN XP2 PRECURSOR (APEG PROTEIN)  |
| 11971                  | 24966                 |                   | 1.33                 | 1.1E-01                                       | AL161511.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 23  |
| 12378                  | 25268                 |                   | 3.78                 | 1.1E-01                                       | BE767023.1               | EST_HUMAN                     | RC2-NT0112-120600-014-403 NT0112 Homo sapiens cDNA   |
| 12849                  | 25910                 |                   | 3.18                 | 1.1E-01                                       | BE974556.1               | EST_HUMAN                     | 601680851R2 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:3950604 3'  |
| 13136                  | 25738                 | 31947             | 1.98                 | 1.1E-01                                       | BF299753.1               | EST_HUMAN                     | 601606350F1 NIH_MGC_54 Homo sapiens cDNA clone IMAGE:4134085 5'  |
| 1228                   | 14388                 |                   | 1.61                 | 1.0E-01                                       | O62855                   | SWISSPROT                     | DEOXYRIBONUCLEASE II PRECURSOR (DNASE II) (ACID DNASE) (LYSOSOMAL DNASE II)  |
| 1301                   | 14457                 | 27523             | 2.18                 | 1.0E-01                                       | AI895498.1               | EST_HUMAN                     | w60401.x1 NCI_CGAP_Kd11 Homo sapiens cDNA clone IMAGE:2486577 3' similar to contains MER7.53   |
| 1423                   | 14577                 | 27650             | 2.3                  | 1.0E-01                                       | AL161504.2               | NT                            | MER7 repetitive element;   |
| 2558                   | 15883                 | 28808             | 1.01                 | 1.0E-01                                       | AW481385.1               | EST_HUMAN                     | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 16  |
| 3813                   | 16873                 | 28678             | 1.11                 | 1.0E-01                                       | BF238618.1               | EST_HUMAN                     | UH-HB3-alc-4-07-Q-JL.s1 NC1_CGAP_Sub03 Homo sapiens cDNA clone IMAGE:2736420 3'  |
| 4054                   | 17220                 | 30228             | 2.6                  | 1.0E-01                                       | BF365703.1               | EST_HUMAN                     | 601606489F1 NIH_MGC_64 Homo sapiens cDNA clone IMAGE:4134071 5'  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 4627                   | 17665             | 30651             | 1.44                 | 1.0E-01                                       | AE002285.2               | NT                            | Chlamydia pneumoniae AR39, section 91 of 94 of the complete genome  |
| 4677                   | 17812             |                   | 0.78                 | 1.0E-01                                       | A1782349.1               | EST_HUMAN                     | en32cd4.y6 Cassini Wilms tumor Homo sapiens cDNA clone IMAGE:1700358 5'   |
| 4834                   | 17967             | 30955             | 2.17                 | 1.0E-01                                       | U50450.1                 | NT                            | Drosophila melanogaster tyrosine kinase p46 isoform (ter) mRNA, complete cds  |
| 5030                   | 18187             | 31143             | 2.17                 | 1.0E-01                                       | AW652344.1               | EST_HUMAN                     | EST364414 MAGE resequences, MAGB Homo sapiens cDNA  |
| 5261                   | 18380             | 31346             | 0.61                 | 1.0E-01                                       | BE389100.1               | EST_HUMAN                     | 601288969F1 NIH_MGC_44 Homo sapiens cDNA clone IMAGE:3613532 5'   |
| 5430                   | 18636             |                   | 9.49                 | 1.0E-01                                       | W88490.1                 | EST_HUMAN                     | zh62h04.s1 Soares fetal_liver_spleen_TNFRS_S1 Homo sapiens cDNA clone IMAGE:410095 3'   |
| 5534                   | 18731             |                   | 0.67                 | 1.0E-01                                       | X54015.1                 | NT                            | X.campestris genes for sensor and regulator protein   |
| 6001                   | 19186             |                   | 1.08                 | 1.0E-01                                       | AK024472.1               | NT                            | Homo sapiens mRNA for FLJ00066 protein, partial cds   |
| 6148                   | 19326             | 32670             | 13.08                | 1.0E-01                                       | AF274875.1               | NT                            | Homo sapiens growth factor receptor-bound protein 7 (GRB7) gene, complete cds   |
| 6465                   | 19632             | 32963             | 0.9                  | 1.0E-01                                       | AA481879.1               | EST_HUMAN                     | zv41g10.s1 Soares ovary tumor NBH07 Homo sapiens cDNA clone IMAGE:766258 3' similar to contains   |
| 6479                   | 19846             | 33008             | 0.72                 | 1.0E-01                                       | AA406039.1               | EST_HUMAN                     | L1.13 L1.1 repetitive element   |
| 7164                   | 20297             |                   | 1.87                 | 1.0E-01                                       | R23821.1                 | EST_HUMAN                     | z637c12.s1 Soares testis_NHT Homo sapiens cDNA clone IMAGE:743062 3'  |
| 7914                   | 20665             |                   | 2.30                 | 1.0E-01                                       | Y12488.1                 | NT                            | yf34h06.r1 Soares placenta Nb2Hp Homo sapiens cDNA clone IMAGE:131675 5' similar to contains Alu repetitive element   |
| 8118                   | 21200             | 34721             | 0.89                 | 1.0E-01                                       | AA881091.1               | EST_HUMAN                     | M.musculus wttn gene  |
| 8141                   | 21223             | 34741             | 2.17                 | 1.0E-01                                       | AF260225.1               | NT                            | ak32g01.s1 Soares testis_NHT Homo sapiens cDNA clone IMAGE:1407696 3' similar to gb:U634182 CAMP-DEPENDENT PROTEIN KINASE, GAMMA-CATALYTIC SUBUNIT (HUMAN); |
| 8141                   | 21223             | 34742             | 2.17                 | 1.0E-01                                       | AF260225.1               | NT                            | Homo sapiens TESTIN 2 and TESTIN 3 genes, complete cds, alternatively spliced   |
| 8689                   | 21769             |                   | 0.06                 | 1.0E-01                                       | AW180797.1               | EST_HUMAN                     | Homo sapiens TESTIN 2 and TESTIN 3 genes, complete cds, alternatively spliced   |
| 9387                   | 22482             | 36028             | 1.12                 | 1.0E-01                                       | AF102856.2               | NT                            | x09501.x1 NCI_CGAP_U14 Homo sapiens cDNA clone IMAGE:2675689 3' similar to gb:X17206 40S  |
| 9695                   | 22744             | 36314             | 0.87                 | 1.0E-01                                       | R44963.1                 | EST_HUMAN                     | REBOSOMAL PROTEIN S4 (HUMAN); contains TAR1.13 TAR1 repetitive element  |
| 9707                   | 22766             |                   | 1.9                  | 1.0E-01                                       | M78729.1                 | NT                            | Rattus norvegicus synaptic SAPAP-interacting protein Synapton mRNA, complete cds  |
| 9750                   | 22888             |                   | 3.15                 | 1.0E-01                                       | AE001501.1               | NT                            | Human pro-alpha-1 (V) collagen mRNA, complete cds   |
| 9764                   | 22761             | 36331             | 0.55                 | 1.0E-01                                       | W01955.1                 | EST_HUMAN                     | Helicobacter pylori, strain J99 section 62 of 132 of the complete genome  |
| 10028                  | 23084             | 36691             | 1.88                 | 1.0E-01                                       | BF240154.1               | EST_HUMAN                     | z68610.s1 Soares fetal_heart_NbH19W Homo sapiens cDNA clone IMAGE:327282 3'   |
| 10139                  | 23177             | 36774             | 8.82                 | 1.0E-01                                       | AB046798.1               | NT                            | 60150581F1 NIH_MGC_54 Homo sapiens cDNA clone IMAGE:4133487 5'  |
| 10139                  | 23177             | 36775             | 8.82                 | 1.0E-01                                       | AB046798.1               | NT                            | Homo sapiens mRNA for KIAA1579 protein, partial cds   |
| 10347                  | 23382             |                   | 1.08                 | 1.0E-01                                       | AW957425.1               | EST_HUMAN                     | Homo sapiens mRNA for KIAA1579 protein, partial cds   |
| 10351                  | 23386             | 36696             | 0.62                 | 1.0E-01                                       | T51952.1                 | EST_HUMAN                     | Homo sapiens mRNA for KIAA1579 protein, partial cds   |
| 10537                  | 23572             | 37179             | 1.27                 | 1.0E-01                                       | BE782750.1               | EST_HUMAN                     | EST369615 MAGE resequences, MAGE Homo sapiens cDNA  |
| 10894                  | 23978             |                   | 1.77                 | 1.0E-01                                       | AU159127.1               | EST_HUMAN                     | y623a06.s1 Strategene fetal spleen (#837205) Homo sapiens cDNA clone IMAGE:72562 3' similar to contains Alu repetitive element                              |
|                        |                   |                   |                      |   |                          |                               | 601594604F1 NIH_MGC_7 Homo sapiens cDNA clone IMAGE:3839096 5'  |
|                        |                   |                   |                      |   |                          |                               | AUT69127 THYRO1 Homo sapiens cDNA clone THYRO1000895 3'   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO. | Exon<br>SEQ ID<br>NO. | ORF SEQ<br>ID NO. | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 11286                  | 24352                 | 37691             | 2.17                 | 1.0E-01                                       | BF242946.1               | EST_HUMAN                     | 601877703F1 NIH_MGC_55 Homo sapiens cDNA clone IMAGE:4106089 5'   |
| 11288                  | 24352                 | 37692             | 2.17                 | 1.0E-01                                       | BF242946.1               | EST_HUMAN                     | 601877703F1 NIH_MGC_55 Homo sapiens cDNA clone IMAGE:4106089 5'   |
| 11695                  | 24894                 | 38374             | 3.64                 | 1.0E-01                                       | BE780543.1               | EST_HUMAN                     | 601582558F1 NIH_MGC_7 Homo sapiens cDNA clone IMAGE:3836734 5'  |
| 11814                  | 24803                 |                   | 1.75                 | 1.0E-01                                       | AP000400.1               | NT                            | Escherichia coli O157:H7 genomic DNA, prophage (Salai-VT1) inserted region, substrain:RIMD 0508952  |
| 12364                  | 25633                 |                   | 1.73                 | 1.0E-01                                       | BE537719.1               | EST_HUMAN                     | 601085554F1 NIH_MGC_10 Homo sapiens cDNA clone IMAGE:3451933 5'   |
| 12608                  | 26408                 |                   | 1.73                 | 1.0E-01                                       | 7682165                  | NT                            | Homo sapiens KIAA0514 gene product (KIAA0514), mRNA   |
| 12639                  | 26119                 |                   | 3.11                 | 1.0E-01                                       | U82691.1                 | NT                            | Gonyaulax polyedra putative type-1 serine/threonine phosphatase (PP1) mRNA, complete cds  |
| 12973                  | 25633                 |                   | 1.8                  | 1.0E-01                                       | BE537719.1               | EST_HUMAN                     | 601085554F1 NIH_MGC_10 Homo sapiens cDNA clone IMAGE:3451933 5'   |
| 13045                  | 26085                 |                   | 25.82                | 1.0E-01                                       | U86834.1                 | NT                            | Saccharomyces cerevisiae suppressor of ABF1 (SAB2) gene, complete cds   |
| 13117                  | 25729                 |                   | 6.53                 | 1.0E-01                                       | AP001507.1               | NT                            | Bacillus halodurans genomic DNA, section 1/14   |
| 13219                  | 26106                 |                   | 1.45                 | 1.0E-01                                       | AE002138.1               | NT                            | Ureaplasma urealyticum section 39 of 59 of the complete genome  |
| 2839                   | 15983                 | 28060             | 0.98                 | 9.9E-02                                       | AF274008.1               | NT                            | Drosophila melanogaster cAMP-dependent protein kinase type II regulatory subunit (pkc-RII) mRNA, complete cds   |
| 2847                   | 15981                 | 29070             | 0.94                 | 9.9E-02                                       | BE545554.1               | EST_HUMAN                     | 601070219F1 NIH_MGC_12 Homo sapiens cDNA clone IMAGE:3456365 5'   |
| 2847                   | 15981                 | 29071             | 0.94                 | 9.9E-02                                       | BE545554.1               | EST_HUMAN                     | 601070219F1 NIH_MGC_12 Homo sapiens cDNA clone IMAGE:3456365 5'   |
| 3340                   | 16513                 | 29328             | 1.31                 | 9.9E-02                                       | AF089810.1               | NT                            | Homo sapiens neurodin III-alpha gene, partial cds   |
| 7110                   | 18536                 | 31492             | 8.98                 | 9.9E-02                                       | D83710.1                 | NT                            | Aspergillus terreus BSD mRNA for blastidin S deaminase, complete cds  |
| 8099                   | 21181                 | 34689             | 0.89                 | 9.9E-02                                       | AW103088.1               | EST_HUMAN                     | xd43c09.x1 NCJ_CGAP_Ov23 Homo sapiens cDNA clone IMAGE:2599528 3' similar to contains Alu repetitive element; contains element MIR MIR repetitive element ; |
| 8099                   | 21181                 |                   | 0.89                 | 9.9E-02                                       | AW103088.1               | EST_HUMAN                     | xd43c09.x1 NCJ_CGAP_Ov23 Homo sapiens cDNA clone IMAGE:2599528 3' similar to contains Alu repetitive element; contains element MIR MIR repetitive element ; |
| 9457                   | 22573                 | 38139             | 1.35                 | 9.9E-02                                       | 6755111                  | NT                            | Mus musculus phospholipid transfer protein (Fltp), mRNA   |
| 12132                  | 25112                 | 38816             | 3.87                 | 9.9E-02                                       | D86980.1                 | NT                            | Human mRNA for KIAA0227 gene, partial cds   |
| 577                    | 13769                 |                   | 2.18                 | 9.9E-02                                       | X56338.1                 | NT                            | O. sativa RAmg6C gene for alpha-amylase   |
| 3214                   | 16388                 | 29398             | 3.66                 | 9.9E-02                                       | AF184274.1               | NT                            | Daucus carota leucoanthocyanidin dioxygenase 2 (LDOX) mRNA, LDOX-2 allele, complete cds   |
| 4339                   | 17482                 | 30463             | 9.93                 | 9.9E-02                                       | AF257329.1               | NT                            | Leptospira maculans beta-tubulin mRNA, complete cds   |
| 4339                   | 17482                 | 30464             | 9.93                 | 9.9E-02                                       | AF257329.1               | NT                            | Leptospira maculans beta-tubulin mRNA, complete cds   |
| 7651                   | 20719                 |                   | 0.98                 | 9.9E-02                                       | X54133.1                 | NT                            | Human HPTP delta mRNA for protein tyrosine phosphatase delta  |
| 8454                   | 22570                 |                   | 1.16                 | 9.9E-02                                       | M61943.1                 | NT                            | Human laminin B1 chain gene, exon 25  |
| 11747                  | 23633                 | 37559             | 1.73                 | 9.9E-02                                       | BF037421.1               | EST_HUMAN                     | 601480783F1 NIH_MGC_66 Homo sapiens cDNA clone IMAGE:3864287 5'   |
| 12332                  | 26240                 |                   | 1.29                 | 9.9E-02                                       | 8393751                  | NT                            | Rattus norvegicus microtubule-associated protein tau (Mapt), mRNA   |
| 1381                   | 14536                 | 27611             | 1.92                 | 9.7E-02                                       | AB005808.1               | NT                            | Aloe arborescens mRNA for NADP-malic enzyme, complete cds   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 1617                   | 14769                 |                   | 1.01                 | 9.7E-02                                       | 4503710                  | NT                            | Homo sapiens fibroblast growth factor receptor 3 (achondroplasia, thanatophoric dwarfism) (FGFR3) mRNA                  |
| 2335                   | 15499                 | 28601             | 2.59                 | 9.7E-02                                       | BE168660.1               | EST_HUMAN                     | QV1-HT0516-070300-095-024 HT0516 Homo sapiens cDNA  |
| 4091                   | 17240                 |                   | 4.05                 | 9.7E-02                                       | Q89786                   | SWISSPROT                     | CELL SURFACE A33 ANTIGEN PRECURSOR (GLYCOPROTEIN A33)   |
| 5481                   | 18981                 | 31639             | 0.59                 | 9.7E-02                                       | AF089189.1               | NT                            | Cauleobacter crescentius thymidylate kinase (tnk) and DNA polymerase III delta prime subunit (dnaC) genes, complete cds |
| 5481                   | 18981                 | 31640             | 0.59                 | 9.7E-02                                       | AF089189.1               | NT                            | Cauleobacter crescentius thymidylate kinase (tnk) and DNA polymerase III delta prime subunit (dnaC) genes, complete cds |
| 6138                   | 19316                 | 32957             | 1.39                 | 9.7E-02                                       | AW054476.1               | EST_HUMAN                     | EST366548 MAGC resequences, MAGC Homo sapiens cDNA  |
| 7450                   | 20527                 | 34000             | 3.05                 | 9.7E-02                                       | Z99119.1                 | NT                            | Bacillus subtilis complete genome (section 16 of 21): from 2897771 to 3213410   |
| 8171                   | 21253                 | 34774             | 1.54                 | 9.7E-02                                       | N22788.1                 | EST_HUMAN                     | yw41cd03.s1 Weizmann Offactory Epithelium Homo sapiens cDNA clone IMAGE:254788 3'                                       |
| 8171                   | 21253                 | 34775             | 1.54                 | 9.7E-02                                       | N22788.1                 | EST_HUMAN                     | yw41cd03.s1 Weizmann Offactory Epithelium Homo sapiens cDNA clone IMAGE:254788 3'                                       |
| 9050                   | 22129                 | 35673             | 1.49                 | 9.7E-02                                       | A0953984.1               | EST_HUMAN                     | wx78500.x1 NCI CGAP_Ox38 Homo sapiens cDNA clone IMAGE:2649747 3' similar to gb:552851_ma1                              |
| 11472                  | 24531                 |                   | 1.72                 | 9.7E-02                                       | U56837.1                 | NT                            | PEPTIDYL-PROLYL CIS-TRANS ISOMERASE A (HUMAN);  |
| 2073                   | 15213                 | 28330             | 1.33                 | 9.8E-02                                       | A080721.1                | EST_HUMAN                     | Mus musculus ligandin (Lgln) mRNA, partial cds  |
| 2073                   | 15213                 | 28331             | 1.33                 | 9.8E-02                                       | A080721.1                | EST_HUMAN                     | oz47d11.x1 Soares_NIHMPu_S1 Homo sapiens cDNA clone IMAGE:1678485 3'  |
| 4484                   | 17604                 | 30982             | 0.67                 | 9.8E-02                                       | Z32886.2                 | NT                            | oz47d11.x1 Soares_NIHMPu_S1 Homo sapiens cDNA clone IMAGE:1678485 3'  |
| 5117                   | 18244                 | 31209             | 0.95                 | 9.8E-02                                       | AW966230.1               | EST_HUMAN                     | Protein mtrabitis fibrillar operon, strain H14320   |
| 6231                   | 19409                 |                   | 2.76                 | 9.8E-02                                       | BE910039.1               | EST_HUMAN                     | EST378303 MAGC resequences, MAGC Homo sapiens cDNA  |
| 8017                   | 21068                 |                   | 0.78                 | 9.8E-02                                       | 6878763                  | NT                            | 60149808F1 NIH_MGC_70 Homo sapiens cDNA clone IMAGE:3900166 5'  |
| 8571                   | 21652                 |                   | 0.65                 | 9.8E-02                                       | AU137094.1               | EST_HUMAN                     | Mus musculus lymphocyte antigen 78 (Ly78) mRNA  |
| 9744                   | 22808                 | 36388             | 1.49                 | 9.8E-02                                       | AV687898.1               | EST_HUMAN                     | AU197084 PLACE1 Homo sapiens cDNA clone PLACE1005740 5'   |
| 10076                  | 23114                 |                   | 1.34                 | 9.8E-02                                       | BE894895.1               | EST_HUMAN                     | AV687898 GKG Homo sapiens cDNA clone GKCAAH02 5'  |
| 10245                  | 23280                 | 36876             | 1.04                 | 9.8E-02                                       | AJ243211.1               | NT                            | 601434080F1 NIH_MGC_72 Homo sapiens cDNA clone IMAGE:3916363 5'   |
| 10245                  | 23280                 | 36877             | 1.04                 | 9.8E-02                                       | AJ243211.1               | NT                            | Homo sapiens DNMT1 candidate tumour suppressor gene, exons 1 to 55  |
| 10325                  | 23360                 | 36970             | 0.62                 | 9.8E-02                                       | BF677270.1               | EST_HUMAN                     | Homo sapiens DNMT1 candidate tumour suppressor gene, exons 1 to 55  |
| 10354                  | 23389                 | 36988             | 1.56                 | 9.8E-02                                       | AB013985.1               | NT                            | 602085769F1 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:4250969 5'   |
| 10354                  | 23389                 | 36990             | 1.56                 | 9.8E-02                                       | AB013985.1               | NT                            | Antirrhinum majus transposon Tami3 pseudogene for transposase (in S-5 copy)   |
| 10465                  | 23500                 | 37113             | 3.43                 | 9.8E-02                                       | P08174                   | SWISSPROT                     | Antirrhinum majus transposon Tami3 pseudogene for transposase (in S-5 copy)   |
| 10681                  | 24060                 | 37694             | 5.27                 | 9.8E-02                                       | Z70702.1                 | NT                            | COMPLEMENT DEGRADATION ACCELERATING FACTOR PRECURSOR (CD55)   |
| 12019                  | 25003                 | 38704             | 2.8                  | 9.8E-02                                       | AA625755.1               | EST_HUMAN                     | Mycobacterium tuberculosis H37Rv complete genome, segment 1027/82   |
| 13015                  | 25688                 |                   | 1.7                  | 9.8E-02                                       | H14598.1                 | EST_HUMAN                     | z091901.s1 Soares_NHT Homo sapiens cDNA clone IMAGE:745392 3'   |
|                        |                       |                   |                      |   |                          |                               | ym191003.s1 Soares Infant brain 1N1B Homo sapiens cDNA clone IMAGE:48653 3'   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 13143                  | 25743                 | 31849             | 1.41                 | 9.6E-02                                       | AJ288624.1               | NT                            | Gallus gallus ALPHA 10 nAChR gene for alpha 10 subunit of nicotinic acetylcholine receptor, exons 1-5 |
| 4217                   | 17386                 | 30355             | 2.16                 | 9.5E-02                                       | AW002395.1               | EST_HUMAN                     | CM2-BN0023-050200-087-412 BN0023 Homo sapiens cDNA  |
| 5782                   | 18974                 | 32280             | 0.88                 | 9.5E-02                                       | P51854                   | SWISSPROT                     | TRANSKETOLASE 2 (TK 2) (TRANSKETOLASE RELATED PROTEIN)  |
| 7455                   | 20532                 | 34008             | 4.64                 | 9.5E-02                                       | AB003473.1               | NT                            | Trimeresurus flavoviridis DNA for phospholipase A2 inhibitor, complete cds                            |
| 7741                   | 20802                 | 34282             | 7.77                 | 9.5E-02                                       | AL161538.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 38   |
| 7876                   | 18974                 | 32280             | 0.81                 | 9.5E-02                                       | P51854                   | SWISSPROT                     | TRANSKETOLASE 2 (TK 2) (TRANSKETOLASE RELATED PROTEIN)  |
| 8084                   | 21146                 | 34686             | 2.85                 | 9.5E-02                                       | BF035861.1               | EST_HUMAN                     | 601453642F1 NIH_MGC_66 Homo sapiens cDNA clone IMAGE:3857243 5'                                       |
| 8084                   | 21146                 | 34687             | 2.85                 | 9.5E-02                                       | BF035861.1               | EST_HUMAN                     | 601453642F1 NIH_MGC_66 Homo sapiens cDNA clone IMAGE:3857243 5'                                       |
| 10918                  | 24001                 | 37634             | 4.09                 | 9.6E-02                                       | BF035861.1               | EST_HUMAN                     | 601453642F1 NIH_MGC_66 Homo sapiens cDNA clone IMAGE:3857243 5'                                       |
| 10918                  | 24001                 | 37635             | 4.09                 | 9.6E-02                                       | BF035861.1               | EST_HUMAN                     | 601453642F1 NIH_MGC_66 Homo sapiens cDNA clone IMAGE:3857243 5'                                       |
| 12104                  | 25084                 |                   | 1.82                 | 9.5E-02                                       | 7657416                  | NT                            | Mus musculus odd Ozherm-in homolog 3 (Drosophila) (Odz3), mRNA  |
| 13097                  | 25715                 |                   | 2.81                 | 9.5E-02                                       | AF272732.1               | NT                            | Arabidopsis thaliana putative transcription factor (MYB110) mRNA, complete cds                        |
| 1880                   | 15024                 | 28130             | 3.85                 | 9.4E-02                                       | BF671063.1               | EST_HUMAN                     | 602180882F1 NIH_MGC_81 Homo sapiens cDNA clone IMAGE:4281917 5'                                       |
| 3985                   | 17142                 | 30147             | 4.64                 | 9.4E-02                                       | Z33059.1                 | NT                            | M. capricornum DNA for CONTIG MC073   |
| 6447                   | 19814                 | 32978             | 0.95                 | 9.4E-02                                       | AF097363.1               | NT                            | Triticum aestivum heat shock protein 101 (Hsp101a) mRNA, complete cds                                 |
| 7769                   | 20827                 | 34318             | 0.89                 | 9.4E-02                                       | L78833.1                 | NT                            | Human BRCA1, Rho7 and vaf genes, complete cds, and p35 gene, partial cds                              |
| 8798                   | 21878                 |                   | 2.5                  | 9.4E-02                                       | Z46883.1                 | NT                            | Acinetobacter sp. eyeD, cobQ, sodM, lyeS, rubA, rubB, estB, oxyR, ppk, mtgA, ORF2 and ORF3 genes      |
| 11174                  | 20827                 | 34318             | 1.9                  | 9.4E-02                                       | L78833.1                 | NT                            | Human BRCA1, Rho7 and vaf genes, complete cds, and p35 gene, partial cds                              |
| 12214                  | 26011                 |                   | 7.72                 | 9.4E-02                                       | U31816.1                 | NT                            | Rattus norvegicus calcium channel alpha-1C subunit (ROB2) mRNA, partial cds                           |
| 13188                  | 25780                 | 31836             | 4.84                 | 9.4E-02                                       | U27698.1                 | NT                            | Human pephBGT-1 betaine-GABA transporter mRNA, complete cds   |
| 3054                   | 16230                 |                   | 2.37                 | 9.3E-02                                       | 4809280                  | NT                            | Homo sapiens BAI1-associated protein 3 (BAIAP3) mRNA  |
| 3094                   | 16270                 |                   | 8.03                 | 9.3E-02                                       | 6912525                  | NT                            | Homo sapiens nasopharyngeal epithelium specific protein 1 (NESP1), mRNA                               |
| 3328                   | 18602                 | 29521             | 2.17                 | 9.3E-02                                       | BF575511.1               | EST_HUMAN                     | 602133088F1 NIH_MGC_81 Homo sapiens cDNA clone IMAGE:4288289 5'                                       |
| 4288                   | 17413                 | 30400             | 3.17                 | 9.3E-02                                       | BE381943.1               | EST_HUMAN                     | 6012860382F1 NIH_MGC_44 Homo sapiens cDNA clone IMAGE:3607653 5'                                      |
| 4288                   | 17413                 | 30401             | 3.17                 | 9.3E-02                                       | BE381943.1               | EST_HUMAN                     | 6012860382F1 NIH_MGC_44 Homo sapiens cDNA clone IMAGE:3607653 5'                                      |
| 4657                   | 17890                 |                   | 1.82                 | 9.3E-02                                       | AV732224.1               | EST_HUMAN                     | AV732224 HTF Homo sapiens cDNA clone HTFAUA06 5'  |
| 5779                   | 18971                 |                   | 0.87                 | 9.3E-02                                       | AP001507.1               | NT                            | Bacillus halodurans genomic DNA, section 1/14   |
| 8442                   | 21623                 | 35052             | 0.56                 | 9.3E-02                                       | AW566007.1               | EST_HUMAN                     | EST09 Human Fetal Brain MATCHMAKER cDNA Library Homo sapiens cDNA                                     |
| 8324                   | 22400                 |                   | 0.5                  | 9.3E-02                                       | AL113179.1               | NT                            | Botrytis cinerea strain T4 cDNA library under conditions of nitrogen deprivation                      |
| 9811                   | 22861                 | 36537             | 2.3                  | 9.3E-02                                       | BE962631.2               | EST_HUMAN                     | 601655688R1 NIH_MGC_86 Homo sapiens cDNA clone IMAGE:3856981 3'                                       |
| 10394                  | 23426                 | 37035             | 3.6                  | 9.3E-02                                       | Q15034                   | SWISSPROT                     | HYPOTHETICAL PROTEIN KIAA0032   |
| 10394                  | 23426                 | 37036             | 3.6                  | 9.3E-02                                       | Q15034                   | SWISSPROT                     | HYPOTHETICAL PROTEIN KIAA0032   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Description  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 10526                  | 23561                 |                   | 3.98                 | 9.3E-02                                       | AW206117.1               | EST_HUMAN                     | UHH-B1-4b-k-05-0-J1.s1 NCI CGAP_Sub3 Homo sapiens cDNA clone IMAGE:2723563 3'  |
| 12485                  | 25933                 |                   | 2.08                 | 9.3E-02                                       | AJ248850.1               | NT                            | Photobacterium damselae subsp. damselae partial gyrB gene for DNA gyrase B subunit   |
| 12905                  | 26904                 |                   | 22.03                | 9.3E-02                                       | AW468850.1               | EST_HUMAN                     | h228h12.x1 Scores_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2810887 3'  |
|                        |                       |                   |                      |   |                          |                               | Mus musculus major histocompatibility locus class II region; Fas-binding protein Daxx (DAXX) gene, partial cds; Bng1 (BING1), tapasin (tapasin), RalGDS-like factor (RLF), KE2 (KE2), BING4 (BING4), beta1, 3-galactosyl transferase (beta1 3-galactosyl tr> |
| 13139                  | 26010                 |                   | 2.87                 | 9.3E-02                                       | AF100958.1               | NT                            | Molluscum contagiosum virus subtype 1, complete genome   |
| 238                    | 13460                 | 26486             | 4.72                 | 9.2E-02                                       | U60315.1                 | NT                            | Molluscum contagiosum virus subtype 1, complete genome   |
| 238                    | 13460                 | 26487             | 4.72                 | 9.2E-02                                       | U60315.1                 | NT                            | Molluscum contagiosum virus subtype 1, complete genome   |
| 238                    | 13460                 | 26488             | 4.72                 | 9.2E-02                                       | U60315.1                 | NT                            | Molluscum contagiosum virus subtype 1, complete genome   |
| 2302                   | 15434                 |                   | 3.08                 | 9.2E-02                                       | R54156.1                 | EST_HUMAN                     | Y98807.1 Scores Infant brain 1N1B Homo sapiens cDNA clone IMAGE:41618 5'   |
| 3247                   | 16421                 | 26437             | 3.7                  | 9.2E-02                                       | Q28831                   | SWISSPROT                     | MAJOR EPIDIDYMIS-SPECIFIC PROTEIN E4 (EPIDIDYMAL PROTEIN BE-20)  |
| 3379                   | 16551                 | 26564             | 1.01                 | 9.2E-02                                       | AA534354.1               | EST_HUMAN                     | nt78a01.s1 NCI CGAP_C63 Homo sapiens cDNA clone IMAGE:928136 3'  |
| 3676                   | 16839                 |                   | 1.14                 | 9.2E-02                                       | 0755215                  | NT                            | Mus musculus pre T-cell antigen receptor alpha (Ptra), mRNA  |
| 4353                   | 17496                 |                   | 1.05                 | 9.2E-02                                       | U92048.1                 | NT                            | Human herpesvirus 1 strain KOS-63, latency-associated transcript, promoter region  |
| 4426                   | 17565                 |                   | 0.88                 | 9.2E-02                                       | BE269722.1               | EST_HUMAN                     | G00844365F1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:2860178 5'  |
| 4760                   | 17895                 | 30975             | 3.44                 | 9.2E-02                                       | X98402.1                 | NT                            | G.gallus Mla-CK gene   |
| 8188                   | 21280                 | 34802             | 1.82                 | 9.2E-02                                       | T48920.1                 | EST_HUMAN                     | ya89c08.r1 Stragene placenta (#937225) Homo sapiens cDNA clone IMAGE:89808 5' similar to similar to  |
| 8370                   | 21451                 | 34974             | 2.18                 | 9.2E-02                                       | X98256.1                 | NT                            | dx-X96009 GUANINE NUCLEOTIDE-BINDING PROTEIN G(S), ALPHA SUBUNIT (HUMAN)   |
| 13120                  | 26201                 |                   | 1.2                  | 9.2E-02                                       | 11466872                 | NT                            | H.vulgaris xylase isomerase gene   |
| 438                    | 13236                 | 26287             | 2.23                 | 9.1E-02                                       | X77665.1                 | NT                            | Podospira ensaeifera mitochondrion, complete genome  |
| 3760                   | 16921                 |                   | 0.97                 | 9.1E-02                                       | AW372593.1               | EST_HUMAN                     | O. curvulus K12 keratin gene   |
| 4607                   | 17744                 | 30723             | 1.78                 | 9.1E-02                                       | AL161554.2               | NT                            | PN2-BT0348-161289-001-402 BT0349 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 54  |
| 6948                   | 19038                 | 32345             | 1.23                 | 9.1E-02                                       | AF129758.1               | NT                            | Homo sapiens MSH55 gene, partial cds; and CLIC1, DDAH, G6b, G6c, G6d, G6e, G6f, BAT5, G6b, CSK2B, BAT4, G4, Apo M, BAT3, BAT2, AIF-1, 1C7, LST-1, LTB, TNF, and LTA genes, complete cds  |
| 7459                   | 26216                 |                   | 0.61                 | 9.1E-02                                       | AF028308.1               | NT                            | Homo sapiens chromosome 9 duplication of the T cell receptor beta locus and tyrosinogen gene families  |
| 7549                   | 20619                 | 34094             | 12.21                | 9.1E-02                                       | AW160658.1               | EST_HUMAN                     | eu74a05.y1 Schmeier fetal brain 00004 Homo sapiens cDNA clone IMAGE:2781988 5'   |
| 7852                   | 20907                 | 34411             | 0.96                 | 9.1E-02                                       | AP000061.1               | NT                            | Aeropyrum pernix genomic DNA, section 4/7  |
| 7887                   | 20939                 | 34445             | 1.02                 | 9.1E-02                                       | U39073.1                 | NT                            | Mus musculus thymopodilin zeta mRNA, complete cds  |
| 9124                   | 22203                 | 35746             | 0.96                 | 9.1E-02                                       | Y14379.1                 | NT                            | Homo sapiens gamma adducin gene, exon 9  |
| 10642                  | 23676                 |                   | 1.48                 | 9.1E-02                                       | T02884.1                 | EST_HUMAN                     | FB19F10 Fetal brain, Stragene Homo sapiens cDNA clone FB19F10 3'end  |
| 10674                  | 23708                 | 37316             | 1.02                 | 9.1E-02                                       | S74059.1                 | NT                            | T6616=Cyl actin [Tripneustes gratilla-sea urchins, embryos, Genbank, 5275 nt]  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 10703                  | 23736                 | 37341             | 0.8                  | 9.1E-02                                       | Y11187.1                 | NT                            | A. thaliana RH1, TC1, G14587-8, and PRL1 genes  |
| 11441                  | 24502                 | 38170             | 2.13                 | 9.1E-02                                       | AF037625.1               | NT                            | Rana catesbeiana dihydropyridine receptor mRNA, complete cds  |
| 12151                  | 25121                 |                   | 7.04                 | 9.1E-02                                       | 9633404                  | NT                            | Bacteriophage M1, complete genome   |
| 12393                  | 26124                 |                   | 1.42                 | 9.1E-02                                       | AA179901.1               | EST_HUMAN                     | zp39h12.s1 Stratiogene muscle 937209 Homo sapiens cDNA clone IMAGE:611763 3' similar to SW:TRT3_HUMAN P46378 TROPONIN T, FAST SKELETAL MUSCLE, ISOFORM BETA:  |
| 12473                  | 26328                 |                   | 1.32                 | 9.1E-02                                       | AF052865.1               | NT                            | Rattus norvegicus cell cycle protein p55CDC gene, complete cds  |
| 12996                  | 26954                 |                   | 13.49                | 9.1E-02                                       | AJ291390.1               | NT                            | Homo sapiens partial MUC3B gene for MUC3B much, exons 1-11  |
| 13230                  | 25789                 |                   | 1.27                 | 9.1E-02                                       | AF226888.1               | NT                            | Bombayx mori fibrin heavy chain Fib-H (fib-H) gene, complete cds  |
| 763                    | 13944                 | 26890             | 5.99                 | 9.0E-02                                       | P15328                   | SWISSPROT                     | FOLATE RECEPTOR ALPHA PRECURSOR (FR-ALPHA) (FOLATE RECEPTOR 1) (FOLATE RECEPTOR, ADULT) (ADULT FOLATE-BINDING PROTEIN) (FBP) (OVARIAN TUMOR-ASSOCIATED ANTIGEN MOV18) (KB CELLS FBP)  |
| 1664                   | 14816                 | 27899             | 7.93                 | 9.0E-02                                       | BE220482.1               | EST_HUMAN                     | h339g10.x1 NCI_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3175842 3' similar to contains Alu repetitive element  |
| 2454                   | 15582                 | 28710             | 1.18                 | 9.0E-02                                       | AW801364.1               | EST_HUMAN                     | IL5-JM00067-240300-050-H06 UM0087 Homo sapiens cDNA   |
| 2864                   | 15978                 | 29088             | 4.99                 | 9.0E-02                                       | AF136522.1               | NT                            | HIV-1 p8c086-06 from USA envelope glycoprotein (env) gene, partial cds  |
| 2864                   | 15978                 | 29089             | 4.99                 | 9.0E-02                                       | AF136522.1               | NT                            | HIV-1 p8c086-06 from USA envelope glycoprotein (env) gene, partial cds  |
| 3417                   | 16588                 | 29803             | 1.11                 | 9.0E-02                                       | AF279135.1               | NT                            | Dictyostelium discoideum spore coat structural protein SP65 (coe) gene, complete cds  |
| 4414                   | 17555                 | 30541             | 0.6                  | 9.0E-02                                       | S68757.1                 | NT                            | corfosteroid-binding globulin [Salinifol sclerous-squarrel monkeys, liver, mRNA, 1474 nt]   |
| 4414                   | 17555                 | 30542             | 0.6                  | 9.0E-02                                       | S68757.1                 | NT                            | corfosteroid-binding globulin [Salinifol sclerous-squarrel monkeys, liver, mRNA, 1474 nt]   |
| 4790                   | 17925                 | 30913             | 2.03                 | 9.0E-02                                       | X65740.2                 | NT                            | Plasmodium falciparum P-type ATPase 3 gene  |
| 6118                   | 19298                 | 32634             | 7.2                  | 9.0E-02                                       | W56037.1                 | EST_HUMAN                     | z668a12.r1 Soerres_fetal_Jung_NbHL10W Homo sapiens cDNA clone IMAGE:297694 5' similar to PIR-S52171 S52171 small G protein - human:   |
| 6890                   | 20012                 |                   | 0.93                 | 9.0E-02                                       | BF082651.1               | EST_HUMAN                     | 7h3d303.x1 NCI_CGAP_Cot16 Homo sapiens cDNA clone IMAGE:3320846 3' similar to contains Alu repetitive element   |
| 12819                  | 25546                 |                   | 1.82                 | 9.0E-02                                       | AF022236.1               | NT                            | Escherichia coli strain E2348/69 pathogenicity island, rOrf1 (rOrf1), rOrf2 (rOrf2), EscR (escR), EscS (escS), EscT (escT), EscU (escU), EscV (escV), EscC (escC), EscJ (escJ), SepZ (sepZ), EscV (escV), EscN (escN), SepQ (sepQ), Trt (trt), OrfU (orfU), > |
| 1489                   | 14623                 | 27708             | 1.25                 | 8.9E-02                                       | BF070593.1               | EST_HUMAN                     | 602120030F2 NIH_MGC_56 Homo sapiens cDNA clone IMAGE:4285951 5'   |
| 1489                   | 14623                 | 27707             | 1.25                 | 8.9E-02                                       | BF070593.1               | EST_HUMAN                     | 602120030F2 NIH_MGC_56 Homo sapiens cDNA clone IMAGE:4285951 5'   |
| 2460                   | 15587                 | 28714             | 1.84                 | 8.9E-02                                       | BE153572.1               | EST_HUMAN                     | PMD-H10339-251189-003-d01 HT0339 Homo sapiens cDNA  |
| 4310                   | 17459                 |                   | 1.69                 | 8.9E-02                                       | AF286055.1               | NT                            | Atrichum argus-stem Atrichum protein (Atrichum) gene, partial cds   |
| 5972                   | 19158                 | 32474             | 2.7                  | 8.9E-02                                       | AW452122.1               | EST_HUMAN                     | U1-HB3-alo-f-08-0-U1.e1 NCI_CGAP_Sub5 Homo sapiens cDNA clone IMAGE:3068284 3'  |
| 5972                   | 19158                 | 32475             | 2.7                  | 8.9E-02                                       | AW452122.1               | EST_HUMAN                     | U1-HB3-alo-f-08-0-U1.e1 NCI_CGAP_Sub5 Homo sapiens cDNA clone IMAGE:3068284 3'  |
| 5987                   | 19172                 | 32484             | 3.34                 | 8.9E-02                                       | 11433478                 | NT                            | Homo sapiens similar to endoglycan (H. sapiens) (LOC83107), mRNA  |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top)<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 7343                   | 20423                 | 33886             | 1.6                  | 8.0E-02                                   | P47259                   | SWISSPROT                     | FOLD BIFUNCTIONAL PROTEIN [INCLUDES: METHYLENETETRAHYDROFOLATE   |
| 7731                   | 20763                 |                   | 1.77                 | 8.0E-02                                   | Z76021.1                 | NT                            | DEHYDROGENASE; METHENYL TETRAHYDROFOLATE CYCLOHYDROLASE ]  |
| 8240                   | 21322                 | 34839             | 1.19                 | 8.9E-02                                   | P29475                   | SWISSPROT                     | H. sapiens flow-sorted chromosome 6 HindIII fragment, SC5pA20F8  |
| 8323                   | 21405                 | 34832             | 0.76                 | 8.9E-02                                   | BF701665.1               | EST_HUMAN                     | NITRIC-OXIDE SYNTHASE, BRAIN (NOS, TYPE I) (NEURONAL NOS) (N-NOS) (NNOS)   |
| 8323                   | 21405                 | 34833             | 0.76                 | 8.9E-02                                   | BF701665.1               | EST_HUMAN                     | (CONSTITUTIVE NOS) (NC-NOS) (BNOS)   |
| 8737                   | 21876                 | 35416             | 5.85                 | 8.9E-02                                   | AA306319.1               | EST_HUMAN                     | 60212911F2 NIH_MGC_56 Homo sapiens cDNA clone IMAGE:4285827 5'   |
| 9819                   | 22859                 | 36439             | 0.84                 | 8.9E-02                                   | A1286027.1               | EST_HUMAN                     | 60212911F2 NIH_MGC_56 Homo sapiens cDNA clone IMAGE:4285827 5'   |
| 9819                   | 22859                 | 36440             | 0.84                 | 8.9E-02                                   | A1286027.1               | EST_HUMAN                     | EST1180187 Liver, hepatocellular carcinoma Homo sapiens cDNA 5' end  |
| 9934                   | 22873                 | 36503             | 0.63                 | 8.9E-02                                   | AA339366.1               | EST_HUMAN                     | qu55c05.x1 NCI_CGAP_Lym6 Homo sapiens cDNA clone IMAGE:1968680 3' similar to contains MER10.b1   |
| 12213                  | 25662                 |                   | 1.8                  | 8.9E-02                                   | P18524                   | SWISSPROT                     | MER10 repetitive element;  |
| 12366                  | 25262                 |                   | 3.82                 | 8.9E-02                                   | BF695918.1               | EST_HUMAN                     | qu55c05.x1 NCI_CGAP_Lym6 Homo sapiens cDNA clone IMAGE:1868680 3' similar to contains MER10.b1   |
| 12537                  | 25366                 |                   | 2.75                 | 8.9E-02                                   | 6680220                  | NT                            | MER10 repetitive element;  |
| 12584                  | 25393                 |                   | 2                    | 8.9E-02                                   | U28895.1                 | NT                            | EST14454 Fetal brain   Homo sapiens cDNA 5' end  |
| 12827                  | 26189                 |                   | 1.16                 | 8.9E-02                                   | U40463.1                 | NT                            | MYOSIN-2 ISOFORM   |
| 12880                  | 26133                 |                   | 1.54                 | 8.9E-02                                   | AE001514.1               | NT                            | 602129882F1 NIH_MGC_56 Homo sapiens cDNA clone IMAGE:4286180 5'  |
| 1404                   | 14558                 | 27632             | 0.96                 | 8.8E-02                                   | Q27474                   | SWISSPROT                     | Mus musculus hippocampus abundant gene transcript 1 (Hic1), mRNA   |
| 4012                   | 17169                 | 30177             | 1.07                 | 8.8E-02                                   | AA299128.1               | EST_HUMAN                     | Human 4-hydroxyphenylpyruvate dioxygenase gene, complete cds   |
| 4145                   | 17297                 |                   | 5.23                 | 8.8E-02                                   | O00288                   | SWISSPROT                     | Ceratitis capitata mariner transposon transposase gene, complete cds   |
| 4418                   | 17559                 |                   | 0.75                 | 8.8E-02                                   | 4680423                  | NT                            | Heilobacter pylori, strain J99 section 76 of 132 of the complete genome  |
| 7716                   | 20780                 |                   | 0.71                 | 8.8E-02                                   | D17520.1                 | NT                            | PROBABLE DNA LIGASE (POLYDEOXYRIBONUCLEOTIDE SYNTHASE [ATP])   |
| 9188                   | 22266                 | 35807             | 2.07                 | 8.8E-02                                   | AA161872.1               | EST_HUMAN                     | EST11696 Uterus Homo sapiens cDNA 5' end   |
| 11380                  | 24441                 | 38099             | 2.79                 | 8.8E-02                                   | BE264455.1               | EST_HUMAN                     | TRANSCRIPTION INITIATION FACTOR TFIIID 135 KDA SUBUNIT (TAFII-135) (TAFII-130)   |
| 11380                  | 24441                 | 38100             | 2.79                 | 8.8E-02                                   | BE264455.1               | EST_HUMAN                     | (TAFII130)   |
| 11941                  | 24597                 | 38273             | 5.25                 | 8.8E-02                                   | AL040129.1               | NT                            | Homo sapiens paired box gene 6 (en1fda, keratitis) (PAX6), isoform b, mRNA   |
| 12443                  | 25314                 | 32090             | 1.19                 | 8.8E-02                                   | Z71581.1                 | NT                            | Sheep mRNA for angiotensinogen, complete cds   |
| 3785                   | 16946                 | 29853             | 4.17                 | 8.7E-02                                   | U82696.2                 | NT                            | z888a05.s1 Strabagene colon (8837204) Homo sapiens cDNA clone IMAGE:566288 3'  |
|                        |                       |                   |                      |   |                          |                               | 601191770F1 NIH_MGC_7 Homo sapiens cDNA clone IMAGE:3535648 5'   |
|                        |                       |                   |                      |   |                          |                               | 601191770F1 NIH_MGC_7 Homo sapiens cDNA clone IMAGE:3535648 5'   |
|                        |                       |                   |                      |   |                          |                               | DKFZp434D1313.1 434 (synonym: htae3) Homo sapiens cDNA clone DKFZp434D1313 5'  |
|                        |                       |                   |                      |   |                          |                               | S. cerevisiae chromosome XIV reading frame ORF YNL285W   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens zinc finger protein 92 (ZFP92), expressed-Xc28STS protein (Xc28ORF), and biglycan (BGN) genes, complete cds; and plasma membrane calcium ATPase isoform 3 (PMCA3) gene, partial cds |

Page 127 of 550  
Table 4

Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 3785                   | 16946                 | 29354             | 4.17                 | 8.7E-02                                       | U82695.2                 | NT                            | Homo sapiens zinc finger protein 82 (ZFP82), expressed-Xq28STS protein (XQ28ORF), and biglycan (BGN) genes, complete cds; and plasma membrane calcium ATPase isoform 3 (PMCA3) gene, partial cds |
| 4829                   | 17862                 | 30650             | 1.4                  | 8.7E-02                                       | AF178636.1               | NT                            | Mus musculus JNK interacting protein-3a (Jip3) mRNA, complete cds  |
| 5211                   | 18332                 |                   | 1.07                 | 8.7E-02                                       | AE000895.1               | NT                            | Methanobacterium thermoautotrophicum from bases 1176181 to 1189406 (section 101 of 148) of the complete genome   |
| 5428                   | 18626                 | 31605             | 5.49                 | 8.7E-02                                       | AA286875.1               | EST_HUMAN                     | z55608.s1 NCL_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:701438 3'  |
| 5429                   | 18628                 | 31608             | 5.49                 | 8.7E-02                                       | AA286875.1               | EST_HUMAN                     | z55608.s1 NCL_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:701438 3'  |
| 6884                   | 20212                 | 33642             | 0.63                 | 8.7E-02                                       | AJ271885.2               | NT                            | Mus musculus partial Kcna1 gene for potassium channel protein, exons 10-14   |
| 6984                   | 20212                 | 33643             | 0.63                 | 8.7E-02                                       | AJ271885.2               | NT                            | Mus musculus partial Kcna1 gene for potassium channel protein, exons 10-14   |
| 7188                   | 20093                 | 33463             | 0.57                 | 8.7E-02                                       | AF281342.1               | NT                            | Oncorhynchus mykiss TAT-binding protein 1 mRNA, partial cds  |
| 8046                   | 21128                 |                   | 0.59                 | 8.7E-02                                       | AA284532.1               | EST_HUMAN                     | z220e03.s1 Scores ovary tumor NB-HOT Homo sapiens cDNA clone IMAGE:713692 3'   |
| 8713                   | 21793                 | 35328             | 0.66                 | 8.7E-02                                       | AE004787.1               | NT                            | Pseudomonas aeruginosa PA01, section 348 of 529 of the complete genome   |
| 8713                   | 21793                 | 35330             | 0.66                 | 8.7E-02                                       | AE004787.1               | NT                            | Pseudomonas aeruginosa PA01, section 348 of 529 of the complete genome   |
| 10851                  | 24033                 |                   | 2.01                 | 8.7E-02                                       | L04758.1                 | NT                            | Oryctolagus cuniculus cytochrome P-450 (CYP-4A4) gene, 5' end  |
| 11591                  | 24644                 | 38328             | 1.49                 | 8.7E-02                                       | AJ007763.1               | NT                            | Glucobacter oxydans tRNA-Ile and tRNA-Ala genes  |
| 12431                  | 25308                 |                   | 2.2                  | 8.7E-02                                       | X17116.1                 | NT                            | Human DNA for immunoglobulin alpha heavy chain from a case of alpha heavy chain disease  |
| 12848                  | 25432                 |                   | 2.85                 | 8.7E-02                                       | 6979057                  | NT                            | Mus musculus nidogen 2 (Nid2), mRNA  |
| 13033                  | 25680                 |                   | 2.05                 | 8.7E-02                                       | X85292.1                 | NT                            | G. gallus mRNA for vlgilin   |
| 1291                   | 14437                 | 27508             | 7.73                 | 8.6E-02                                       | AJ271736.1               | NT                            | Homo sapiens Xq pseudautosomal region; segment 2/2   |
| 2317                   | 15448                 | 28591             | 2.2                  | 8.6E-02                                       | BE408687.1               | EST_HUMAN                     | 601304016F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3638643 5'  |
| 3257                   | 16431                 | 28448             | 2.35                 | 8.6E-02                                       | L05468.1                 | NT                            | Trichomonas vaginalis beta-tubulin (tub1) gene, complete cds   |
| 3734                   | 16895                 |                   | 3.69                 | 8.6E-02                                       | AF153362.1               | NT                            | Dicystotellum discoidium adenylate cyclase (acrA) gene, complete cds   |
| 3880                   | 17039                 |                   | 0.6                  | 8.6E-02                                       | U28187.1                 | NT                            | Mus musculus long incubation p10n protein (Pmp10) and p10n-like protein (Pmp1) genes, complete cds   |
| 4609                   | 17748                 | 30725             | 0.66                 | 8.6E-02                                       | U88179.1                 | NT                            | Oryctolagus cuniculus galectin-3 gene, untranslated exon and 5' flanking region  |
| 5330                   | 18443                 |                   | 1.02                 | 8.6E-02                                       | AB011183.1               | NT                            | Homo sapiens mRNA for KIAA0561 protein, partial cds  |
| 6219                   | 18394                 | 32743             | 4.74                 | 8.6E-02                                       | Y10826.1                 | NT                            | Homo sapiens LCN1b gene  |
| 6504                   | 19670                 | 33035             | 1.29                 | 8.6E-02                                       | J00440.1                 | NT                            | Mouse germline IgM chain gene, D region; D-q52, mu switch region (part a)  |
| 6504                   | 19670                 | 33038             | 1.26                 | 8.6E-02                                       | J00440.1                 | NT                            | Mouse germline IgM chain gene, D region; D-q52, mu switch region (part a)  |
| 7755                   | 20814                 | 34306             | 0.89                 | 8.6E-02                                       | P14616                   | SWISSPROT                     | INSULIN RECEPTOR-RELATED PROTEIN PRECURSOR (IRR) (IR-RELATED RECEPTOR)   |
| 8115                   | 21197                 | 34718             | 1.09                 | 8.6E-02                                       | 5730068                  | NT                            | Homo sapiens Smf2-related CBP activator protein (SRCAP) mRNA   |
| 8115                   | 21197                 | 34717             | 1.09                 | 8.6E-02                                       | 5730068                  | NT                            | Homo sapiens Smf2-related CBP activator protein (SRCAP) mRNA   |
| 8261                   | 21343                 | 34860             | 0.56                 | 8.6E-02                                       | 11427428                 | NT                            | Homo sapiens hypothetical protein FLJ11006 (FLJ11006), mRNA  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top)<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 8324                   | 21406                 |                   | 0.76                 | 8.6E-02                                   | U60186.1                 | NT                            | Dialyostellum discoideum proteasome subunit C2 homolog Pric (pric) gene, complete cds   |
| 9038                   | 22977                 | 36558             | 1.24                 | 8.6E-02                                   | AF111170.3               | NT                            | Homo sapiens 14q32 Jegged2 gene, complete cds; and unknown gene   |
| 9975                   | 23014                 |                   | 1.4                  | 8.6E-02                                   | AW682153.1               | EST_HUMAN                     | H20008.x1 NCI_CGAP_GU1 Homo sapiens cDNA clone IMAGE:2972846 3'   |
| 10356                  | 23391                 | 37001             | 1.07                 | 8.6E-02                                   | AF026504.1               | NT                            | Rattus norvegicus SPA-1 like protein p1294 mRNA, complete cds   |
| 11188                  | 24257                 | 37882             | 1.82                 | 8.6E-02                                   | AF206551.1               | NT                            | Lacerta media cytochrome c oxidase subunit 1 gene, partial cds; mitochondrial gene for mitochondrial product  |
| 11188                  | 24257                 | 37883             | 1.82                 | 8.6E-02                                   | AF206551.1               | NT                            | Lacerta media cytochrome c oxidase subunit 1 gene, partial cds; mitochondrial gene for mitochondrial product  |
| 11627                  | 24583                 | 38259             | 3.02                 | 8.6E-02                                   | BF305606.1               | EST_HUMAN                     | 6071893437F1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:4139216 5'  |
| 11527                  | 24583                 | 38260             | 3.02                 | 8.6E-02                                   | BF305606.1               | EST_HUMAN                     | 6071893437F1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:4139216 5'  |
| 11724                  | 23910                 | 37634             | 7.67                 | 8.6E-02                                   | AEO01073.1               | NT                            | Archaeoglobus fulgidus section 34 of 172 of the complete genome   |
| 11875                  | 24863                 | 38559             | 2.29                 | 8.6E-02                                   | AF283880.1               | NT                            | Bacillus stearothermophilus BarFI methylase (FIM) and BarFI restriction endonuclease (FIR) genes, complete cds  |
| 2470                   | 15597                 | 28722             | 2.58                 | 8.5E-02                                   | AE000652.1               | NT                            | Helicobacter pylori 26695 section 130 of 134 of the complete genome   |
| 5282                   | 18410                 |                   | 0.68                 | 8.5E-02                                   | N76815.1                 | EST_HUMAN                     | y46808.t1 Scores fetal liver spleen 1N1LS Homo sapiens cDNA clone IMAGE:245823 5'   |
| 5786                   | 18978                 | 32283             | 0.73                 | 8.5E-02                                   | AA085491.1               | EST_HUMAN                     | cd83607.s1 NCI_CGAP_Ku8 Homo sapiens cDNA clone IMAGE:1882917 3' similar to gb:K01144 HLA CLASS II HISTOCOMPATIBILITY ANTIGEN, GAMMA C-CHAIN PRECURSOR (HUMAN); |
| 5826                   | 18016                 |                   | 1.59                 | 8.5E-02                                   | P08089                   | SWISSPROT                     | M PROTEIN, SEROTYPE B PRECURSOR   |
| 6135                   | 18314                 | 32853             | 6.61                 | 8.5E-02                                   | AF233885.1               | NT                            | Mus musculus phospholipase C-like protein mRNA, partial cds   |
| 8905                   | 21884                 | 35424             | 1.98                 | 8.5E-02                                   | 6764779                  | NT                            | Mus musculus myosin XV (Myo15), mRNA  |
| 10041                  | 23079                 | 36980             | 3.27                 | 8.5E-02                                   | BE633054.1               | EST_HUMAN                     | RCL-OT0037-200700-014-005 OT0037 Homo sapiens cDNA  |
| 10041                  | 23079                 | 36981             | 3.27                 | 8.5E-02                                   | BE633054.1               | EST_HUMAN                     | RCL-OT0037-200700-014-005 OT0037 Homo sapiens cDNA  |
| 10572                  | 23607                 | 37212             | 0.64                 | 8.5E-02                                   | X76731.1                 | NT                            | V armodyles gene for armodylin C  |
| 10702                  | 23735                 | 37340             | 0.82                 | 8.5E-02                                   | 11418108                 | NT                            | Homo sapiens chromosome 22 open reading frame 5 (C22ORF5), mRNA   |
| 11424                  | 24485                 |                   | 8.03                 | 8.5E-02                                   | AF156510.1               | NT                            | Homo sapiens heparanase precursor, mRNA, complete cds   |
| 11446                  | 24507                 | 38173             | 3.82                 | 8.5E-02                                   | AB001582.1               | NT                            | Streptococcus mutans gene for glucose-1-phosphate uridylyltransferase, complete cds   |
| 12873                  | 25888                 |                   | 2.76                 | 8.5E-02                                   | AJ005596.1               | NT                            | Antirrhinum majus mRNA for MYB-related transcription factor   |
| 13070                  | 25700                 |                   | 2.44                 | 8.5E-02                                   | AA302894.1               | EST_HUMAN                     | EST12736 Ovary II Homo sapiens cDNA 5' end  |
| 2732                   | 16070                 | 28981             | 4.05                 | 8.4E-02                                   | W68330.1                 | EST_HUMAN                     | cd44e11.t1 Scores fetal heart NBH19W Homo sapiens cDNA clone IMAGE:343532 5'  |
| 5427                   | 18027                 | 31803             | 8.84                 | 8.4E-02                                   | BE287153.1               | EST_HUMAN                     | 601180436F1 NIH_MGC_7 Homo sapiens cDNA clone IMAGE:3534393 5'  |
| 6828                   | 18881                 | 33388             | 1.46                 | 8.4E-02                                   | AK024458.1               | NT                            | Homo sapiens mRNA for FLJ00050 protein, partial cds   |
| 8218                   | 21300                 | 34821             | 6.95                 | 8.4E-02                                   | BE09074.1                | EST_HUMAN                     | CMB-BT0790-280400-162-d05 BT0790 Homo sapiens cDNA  |
| 9043                   | 22122                 | 35864             | 1.16                 | 8.4E-02                                   | AF218890.1               | NT                            | Homo sapiens attractin precursor (ATRIN) gene, exon 2   |

Table 4  
Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top)<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 10571                  | 23606                 | 37211             | 1.94                 | 8.4E-02                                   | A735184.1                | EST_HUMAN                     | ss8g10.x1 Barsheed colon HFLR87 Homo sapiens cDNA clone IMAGE:2335942 3' similar to TR:O88312    |
| 10631                  | 23695                 |                   | 0.48                 | 8.4E-02                                   | A730882.1                | EST_HUMAN                     | O88312 GDB-4.;   |
| 12651                  | 26264                 | 32114             | 1.87                 | 8.4E-02                                   | R79408.1                 | EST_HUMAN                     | A730882 HTF Homo sapiens cDNA clone HTFBMG04 5'  |
| 3682                   | 16846                 | 28653             | 7.77                 | 8.3E-02                                   | P76334                   | SWISSPROT                     | X63112.1 Soares placenta Nb2-P Homo sapiens cDNA clone IMAGE:145885 5'                           |
| 3708                   | 16870                 | 29873             | 0.75                 | 8.3E-02                                   | A436797.1                | EST_HUMAN                     | HYPOTHETICAL LIPOPROTEIN MG309 HOMOLOG PRECURSOR   |
| 3709                   | 16870                 | 29874             | 0.75                 | 8.3E-02                                   | A436797.1                | EST_HUMAN                     | th82g08.x1 Soares_NhlHMPu_S1 Homo sapiens cDNA clone IMAGE:2125210 3'                            |
| 4417                   | 17558                 |                   | 0.88                 | 8.3E-02                                   | M54984.1                 | NT                            | th82g08.x1 Soares_NhlHMPu_S1 Homo sapiens cDNA clone IMAGE:2125210 3'                            |
| 6388                   | 19588                 | 32917             | 0.74                 | 8.3E-02                                   | A842838.1                | EST_HUMAN                     | C. truncal A2b region open reading frame, complete cds   |
| 6488                   | 19652                 | 33025             | 2.87                 | 8.3E-02                                   | A7052883.1               | NT                            | w07911.1 NCI CGAP_Kid11 Homo sapiens cDNA clone IMAGE:2461581 3'                                 |
| 8169                   | 21261                 | 34771             | 3.08                 | 8.3E-02                                   | AF106787.1               | NT                            | Homo sapiens protocadherin 43 gene, exon 1   |
| 8202                   | 21264                 |                   | 1.06                 | 8.3E-02                                   | AA895285.1               | EST_HUMAN                     | Rattus norvegicus dystrophin-related protein 2 A-form splice variant (Dp2) mRNA, complete cds    |
| 8496                   | 21576                 |                   | 1.31                 | 8.3E-02                                   | AA887873.1               | EST_HUMAN                     | cg88g08.s1 NCI CGAP_Kid5 Homo sapiens cDNA clone IMAGE:1455422 3' similar to contains L1.1 L1 L1 |
| 8738                   | 22803                 | 36377             | 1.09                 | 8.3E-02                                   | AW583503.1               | EST_HUMAN                     | repetitive element;  |
| 8751                   | 22889                 |                   | 2.02                 | 8.3E-02                                   | AL161698.2               | NT                            | cg9110.s1 NCI CGAP_Kid6 Homo sapiens cDNA clone IMAGE:1662779 3'                                 |
| 10549                  | 23584                 |                   | 0.72                 | 8.3E-02                                   | AF020409.1               | NT                            | la0910.x1 Human Pancreatic Islets Homo sapiens cDNA 3' similar to TR:Q15332 Q15332 GAMMA         |
| 12448                  | 26128                 |                   | 1.81                 | 8.3E-02                                   | BE939458.1               | EST_HUMAN                     | SUBUNIT OF SODIUM POTASSIUM ATPASE LIKE.;  |
| 1410                   | 14584                 |                   | 9.13                 | 8.2E-02                                   | Y08170.2                 | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 91                                    |
| 1525                   | 14878                 | 27759             | 2.03                 | 8.2E-02                                   | AF167077.2               | NT                            | Dictyostellium discoideum Doca (dca) mRNA, complete cds  |
| 3141                   | 16317                 |                   | 1.97                 | 8.2E-02                                   | AL163206.2               | NT                            | 601844770F1 NIH_MGC_96 Homo sapiens cDNA clone IMAGE:3828683 5'                                  |
| 3904                   | 17063                 |                   | 1.35                 | 8.2E-02                                   | AL161498.2               | NT                            | Gallus gallus mRNA for OBGAM protein gamma isoform   |
| 4114                   | 17288                 | 30268             | 0.89                 | 8.2E-02                                   | AL163208.2               | NT                            | Caris familiaris glutamate transporter (EAAT4) mRNA, complete cds                                |
| 4369                   | 17542                 | 30523             | 6.59                 | 8.2E-02                                   | P48680                   | SWISSPROT                     | Homo sapiens chromosome 21 segment HS21C006  |
| 4398                   | 17542                 | 30524             | 6.58                 | 8.2E-02                                   | P48680                   | SWISSPROT                     | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 10                                    |
| 4889                   | 17542                 | 30525             | 6.58                 | 8.2E-02                                   | P48680                   | SWISSPROT                     | Homo sapiens chromosome 21 segment HS21C008  |
| 5182                   | 18314                 | 31282             | 9.43                 | 8.2E-02                                   | U76008.1                 | NT                            | LEUCOCYTE ANTIGEN CD97 PRECURSOR   |
| 5450                   | 18650                 | 31629             | 1.46                 | 8.2E-02                                   | BE997030.1               | EST_HUMAN                     | LEUCOCYTE ANTIGEN CD97 PRECURSOR   |
| 7165                   | 20288                 | 33741             | 3.16                 | 8.2E-02                                   | AF308555.1               | NT                            | LEUCOCYTE ANTIGEN CD97 PRECURSOR   |
| 7610                   | 20682                 |                   | 0.59                 | 8.2E-02                                   | AV743341.1               | EST_HUMAN                     | LEUCOCYTE ANTIGEN CD97 PRECURSOR   |
| 8905                   | 21984                 |                   | 0.59                 | 8.2E-02                                   | U28397.1                 | NT                            | Mus musculus zinc transporter (ZnT-3) gene, complete cds   |
| 8971                   | 22050                 | 35593             | 3.24                 | 8.2E-02                                   | AW875128.1               | EST_HUMAN                     | 601438678F1 NIH_MGC_72 Homo sapiens cDNA clone IMAGE:3824523 5'                                  |
| 9789                   | 22838                 | 36416             | 4.89                 | 8.2E-02                                   | X04197.1                 | NT                            | Bos taurus connective tissue growth factor precursor (CTGF) gene, complete cds                   |
|                        |                       |                   |                      |   |                          |                               | AV743341 CB Homo sapiens cDNA clone CBLANF07 5'  |
|                        |                       |                   |                      |   |                          |                               | Rattus norvegicus plasma membrane Ca2+ ATPase isoform 3 (PMCA3) gene, 5' flanking region         |
|                        |                       |                   |                      |   |                          |                               | RC2-PT0004-031289-011-405 PT0004 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | Beet necrotic yellow vein virus RNA-2  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 8985                   | 23004                 | 36599             | 2.27                 | 8.2E-02                                       | BE254318.1               | EST_HUMAN                     | 601115055F1 NIH_MGC_16 Homo sapiens cDNA clone IMAGE:3355598 5'  |
| 12454                  | 25318                 | 32094             | 3.93                 | 8.2E-02                                       | AE002246.2               | NT                            | Chlamydomonas reinhardtii AF339, section 73 of 84 of the complete genome   |
| 12686                  | 25498                 | 32021             | 1.43                 | 8.2E-02                                       | AW862185.1               | EST_HUMAN                     | QV4-CT0361-021289-040-b01 CT0361 Homo sapiens cDNA   |
| 12689                  | 25875                 |                   | 2.58                 | 8.2E-02                                       | AF275388.1               | NT                            | Mus musculus epidermal growth factor receptor (Egfr) gene, exons 5 through 28, and complete cds, alternatively spliced                             |
| 1524                   | 14677                 | 27758             | 0.96                 | 8.1E-02                                       | AB017138.1               | NT                            | Pseudomonas putida malonate decarboxylase gene cluster (mdcA, mdcB, mdcC, mdcD, mdcE, mdcG, mdcH, mdcI, and mdcM genes), complete cds              |
| 5873                   | 18063                 | 32371             | 1.03                 | 8.1E-02                                       | AE004006.1               | NT                            | Xylella fastidiosa, section 152 of 229 of the complete genome  |
| 6508                   | 18674                 | 33043             | 0.89                 | 8.1E-02                                       | T11532.1                 | EST_HUMAN                     | A1494F Heart Homo sapiens cDNA clone A1484   |
| 7347                   | 20427                 |                   | 0.83                 | 8.1E-02                                       | AL163278.2               | NT                            | Homo sapiens chromosome 21 segment HS21C079  |
| 7766                   | 20815                 |                   | 0.99                 | 8.1E-02                                       | AI692681.1               | EST_HUMAN                     | wd8908.x1 NCI_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:2338503 3'   |
| 8535                   | 21616                 | 35151             | 0.58                 | 8.1E-02                                       | 11428974                 | NT                            | Homo sapiens hypothetical protein FLJ10060 (FLJ10060), mRNA  |
| 8535                   | 21616                 | 35152             | 0.58                 | 8.1E-02                                       | 11428974                 | NT                            | Homo sapiens hypothetical protein FLJ10060 (FLJ10060), mRNA  |
| 10116                  | 23154                 |                   | 1.83                 | 8.1E-02                                       | AY005160.1               | NT                            | Homo sapiens extracellular glycoprotein lactin precursor, gene, complete cds   |
| 10885                  | 23719                 |                   | 0.7                  | 8.1E-02                                       | AW269778.1               | EST_HUMAN                     | xa45b11.x1 Scores_NFL_I_GBC_S1 Homo sapiens cDNA clone IMAGE:2816061 3'  |
| 10888                  | 23891                 | 37511             | 0.47                 | 8.1E-02                                       | AW450487.1               | EST_HUMAN                     | UI-H-B13-eko-g-01-Q-UJ.s1 NCI_CGAP_Sub5 Homo sapiens cDNA clone IMAGE:2735040 3'   |
| 10858                  | 23891                 | 37512             | 0.47                 | 8.1E-02                                       | AW450487.1               | EST_HUMAN                     | UI-H-B13-eko-g-01-Q-UJ.s1 NCI_CGAP_Sub5 Homo sapiens cDNA clone IMAGE:2735040 3'   |
| 11790                  | 24780                 | 38477             | 1.99                 | 8.1E-02                                       | AL163202.2               | NT                            | Homo sapiens chromosome 21 segment HS21C002  |
| g                      | 16003                 | 26246             | 7.61                 | 8.0E-02                                       | AW964663.1               | EST_HUMAN                     | EST386723 IMAGE resequences, MAGC Homo sapiens cDNA  |
| 959                    | 14132                 | 27191             | 0.65                 | 8.0E-02                                       | U60315.1                 | NT                            | Molluscum contagiosum virus subtype 1, complete genome   |
| 1733                   | 16046                 | 27974             | 11.83                | 8.0E-02                                       | D26535.1                 | NT                            | Human gene for dihydropyrimidine succinyltransferase, complete cds (exon 1-16)   |
| 1793                   | 16046                 | 27975             | 11.83                | 8.0E-02                                       | D26535.1                 | NT                            | Human gene for dihydropyrimidine succinyltransferase, complete cds (exon 1-15)   |
| 1852                   | 15095                 | 28196             | 4.4                  | 8.0E-02                                       | BE067219.1               | EST_HUMAN                     | PM8-BT0347-170200-001-508 BT0347 Homo sapiens cDNA   |
| 2447                   | 15575                 | 28704             | 0.93                 | 8.0E-02                                       | D90915.1                 | NT                            | Synechocystis sp. PCC6803 complete genome, 17/27, 2137258-2267258  |
| 2447                   | 15575                 | 28705             | 0.93                 | 8.0E-02                                       | D90915.1                 | NT                            | Synechocystis sp. PCC6803 complete genome, 17/27, 2137259-2267259  |
| 2541                   | 15668                 |                   | 3.21                 | 8.0E-02                                       | BF246744.1               | EST_HUMAN                     | 601855448F1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:4076619 5'  |
| 2881                   | 14280                 | 27338             | 1.55                 | 8.0E-02                                       | M23449.1                 | NT                            | Dictpesidium discoidum cyclic nucleotide phosphodiesterase gene, complete cds  |
| 2965                   | 16141                 | 29159             | 1.05                 | 8.0E-02                                       | AL445087.1               | NT                            | Thermoplasma acidophilum complete genome, segment 515  |
| 3919                   | 17078                 | 30075             | 0.93                 | 8.0E-02                                       | AW966118.1               | EST_HUMAN                     | EST378191 IMAGE resequences, MAGI Homo sapiens cDNA  |
| 4182                   | 17332                 |                   | 0.74                 | 8.0E-02                                       | 4503034                  | NT                            | Homo sapiens cAMP responsive element binding protein-like 2 (CREBL2) mRNA  |
| 4835                   | 18065                 |                   | 6.87                 | 8.0E-02                                       | X72794.1                 | NT                            | Mus musculus gene for gelatinase B   |
| 5038                   | 18168                 | 31142             | 0.82                 | 8.0E-02                                       | M28071.1                 | NT                            | Herpesvirus saimiri transformation-associated protein (STP), and dihydrofolate reductase (DHFR) gene, complete cds, and small nuclear RNAs (lRNAs) |
| 6012                   | 19188                 | 32513             | 3.58                 | 8.0E-02                                       | AF275948.1               | NT                            | Homo sapiens ABCA1 (ABCA1) gene, complete cds  |

Page 131 of 550  
Table 4

Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 7330                   | 19186                 | 32513             | 1.61                 | 8.0E-02                                       | AF275948.1               | NT                            | Homo sapiens ABCA1 (ABCA1) gene, complete cds  |
| 8319                   | 21401                 | 34926             | 2.41                 | 8.0E-02                                       | AL114893.1               | NT                            | Bdtrifis chereia strain T4 cDNA library under conditions of nitrogen deprivation   |
| 8389                   | 22644                 | 36213             | 1.38                 | 8.0E-02                                       | X74208.1                 | NT                            | H. sapiens AGT gene, intron 4  |
| 8589                   | 22844                 | 36214             | 1.38                 | 8.0E-02                                       | X74208.1                 | NT                            | H. sapiens AGT gene, intron 4  |
| 10361                  | 23366                 |                   | 0.49                 | 8.0E-02                                       | AL163208.2               | NT                            | Homo sapiens chromosome 21 segment HS21C009  |
| 11032                  | 24111                 | 37747             | 2.64                 | 8.0E-02                                       | AF217986.1               | NT                            | Homo sapiens SCG10 like-protein, helicase-like protein NHL, M68, and ADP-ribosylation factor related protein 1 (ARFRP1) genes, complete cds  |
| 12127                  | 25107                 | 38811             | 1.69                 | 8.0E-02                                       | 4507608                  | NT                            | Homo sapiens tumor necrosis factor (ligand) superfamily, member 9 (TNFSF9) mRNA  |
| 12496                  | 25337                 | 32061             | 3.54                 | 8.0E-02                                       | AJ006376.1               | NT                            | Drosophila orexin hunchback region   |
| 13134                  | 17332                 |                   | 1.85                 | 8.0E-02                                       | 4503034                  | NT                            | Homo sapiens cAMP responsive element binding protein-like 2 (CREBL2) mRNA  |
| 2243                   | 15376                 | 28504             | 3.37                 | 7.9E-02                                       | BE250008.1               | EST_HUMAN                     | 800943191F1 NIH_MGC_15 Homo sapiens cDNA clone IMAGE:2856510 5'  |
| 3043                   | 16219                 | 28240             | 12.63                | 7.9E-02                                       | AJ582029.1               | EST_HUMAN                     | ar96083x1 Barstead colon HPLRB7 Homo sapiens cDNA clone IMAGE:2173646 3' similar to gb:Z26876  |
| 3953                   | 17111                 | 30110             | 4.47                 | 7.9E-02                                       | 6681044                  | NT                            | 60S RIBOSOMAL PROTEIN L38 (HUMAN);   |
| 3953                   | 17111                 | 30111             | 4.47                 | 7.9E-02                                       | 6681044                  | NT                            | Mus musculus colony stimulating factor 1 receptor (Csfr1), mRNA  |
| 4932                   | 18062                 |                   | 1.16                 | 7.9E-02                                       | AB008019.1               | NT                            | Mus musculus colony stimulating factor 1 receptor (Csfr1), mRNA  |
| 6836                   | 18989                 |                   | 1.14                 | 7.9E-02                                       | BF368018.1               | EST_HUMAN                     | Arabidopsis thaliana RXW24L mRNA, partial cds  |
| 8221                   | 21303                 | 34824             | 3.1                  | 7.9E-02                                       | U27832.1                 | NT                            | RC9-GN0042-310300-024-d11 GN0042 Homo sapiens cDNA   |
| 10234                  | 23269                 | 36859             | 5.6                  | 7.9E-02                                       | AJ081644.1               | EST_HUMAN                     | Saccharomyces cerevisiae suppressor of Mif2 Smk4p (SMT4) gene, complete cds  |
| 10234                  | 23269                 | 36860             | 5.6                  | 7.9E-02                                       | AJ081644.1               | EST_HUMAN                     | cu63005.st NCI_CGAP_Br2 Homo sapiens cDNA clone IMAGE:1632466 3' similar to WP:C37A2.2   |
| 13008                  | 25664                 |                   | 1.27                 | 7.9E-02                                       | AJ761639.1               | EST_HUMAN                     | CE08611;   |
| 1237                   | 14396                 | 27457             | 1.49                 | 7.8E-02                                       | AJ763276.1               | EST_HUMAN                     | cu63005.st NCI_CGAP_Br2 Homo sapiens cDNA clone IMAGE:1632466 3' similar to WP:C37A2.2   |
| 1237                   | 14396                 | 27458             | 1.49                 | 7.8E-02                                       | AJ763276.1               | EST_HUMAN                     | CE08611;   |
| 4915                   | 18045                 | 31035             | 0.6                  | 7.8E-02                                       | BE636331.1               | EST_HUMAN                     | wg68701.x1 Soares NSF_F8_9W_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:2370097 3'  |
| 5198                   | 17003                 |                   | 2.97                 | 7.8E-02                                       | BE250048.1               | EST_HUMAN                     | cc58402.y5 NCI_CGAP_Lu5 Homo sapiens cDNA clone IMAGE:1670467 5' similar to contains L1:18 L1  |
|                        |                       |                   |                      |   |                          |                               | repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | cc58402.y5 NCI_CGAP_Lu5 Homo sapiens cDNA clone IMAGE:1670467 5' similar to contains L1:18 L1  |
|                        |                       |                   |                      |   |                          |                               | repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | PM3-FN0058-140700-005-009 FN0058 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | 800943055F1 NIH_MGC_15 Homo sapiens cDNA clone IMAGE:2659693 5'  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens zinc finger protein 92 (ZFP92), expressed-Xq28STS protein (XQ28ORF), and biglycan (BGN) genes, complete cds; and plasma membrane calcium ATPase isoform 3 (PMCA3) gene, partial cds |
| 7223                   | 20087                 | 33504             | 1.1                  | 7.8E-02                                       | U82695.2                 | NT                            |  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 7223                   | 20087                 | 33505             | 1.1                  | 7.8E-02                                       | U82895.2                 | NT                            | Homo sapiens zinc finger protein 92 (ZFP92), expressed-Xq28STS protein (XQ28ORF), and blyscan (BGN) genes, complete cds; and plasma membrane calcium ATPase isoform 3 (PMCA3) gene, partial cds |
| 8085                   | 22004                 | 35004             | 0.93                 | 7.8E-02                                       | BE897947.1               | EST_HUMAN                     | 601440430F1 NIH_MGC_72 Homo sapiens cDNA clone IMAGE:3925449 5'   |
| 9081                   | 22160                 | 35702             | 0.89                 | 7.8E-02                                       | X78344.1                 | NT                            | S. cerevisiae CAT8 gene   |
| 9253                   | 22330                 | 35877             | 0.8                  | 7.8E-02                                       | AF233437.1               | NT                            | Homo sapiens FYVE domain-containing dual specificity protein phosphatase FYVE-DSP1b mRNA, complete cds  |
| 9253                   | 22330                 | 35878             | 0.8                  | 7.8E-02                                       | AF233437.1               | NT                            | Homo sapiens FYVE domain-containing dual specificity protein phosphatase FYVE-DSP1b mRNA, complete cds  |
| 9561                   | 22703                 | 36269             | 0.9                  | 7.8E-02                                       | AA468354.1               | EST_HUMAN                     | nc88b08.t1 NCL CGAP_P1 Homo sapiens cDNA clone IMAGE:771731   |
| 10006                  | 23044                 | 36637             | 0.95                 | 7.8E-02                                       | Z89124.1                 | NT                            | Bacillus subtilis complete genome (section 21 of 21): from 3999281 to 4214814   |
| 10901                  | 23055                 | 37618             | 2.19                 | 7.8E-02                                       | U32323.1                 | NT                            | Human interleukin-11 receptor alpha chain gene, complete cds  |
| 12910                  | 25602                 | 31973             | 1.35                 | 7.8E-02                                       | U72847.1                 | NT                            | Homo sapiens emoplatin (EYPL) gene, exons 15 through 18   |
| 1431                   | 16038                 | 27659             | 1.22                 | 7.7E-02                                       | AF181897.1               | NT                            | Homo sapiens WRN (WRN) gene, complete cds   |
| 3677                   | 16840                 |                   | 2.01                 | 7.7E-02                                       | AJ238083.1               | NT                            | Homo sapiens partial AF-4 gene, exons 2 to 7 and Alu repeat elements  |
| 8083                   | 21175                 | 34690             | 5.38                 | 7.7E-02                                       | AA402949.1               | EST_HUMAN                     | TR-G1173905 G1173905 SPLICEOSOME ASSOCIATED PROTEIN. ;  |
| 10040                  | 23078                 | 36678             | 4.88                 | 7.7E-02                                       | P38080                   | SWISSPROT                     | PROBABLE SERINE/THREONINE-PROTEIN KINASE YBR059C  |
| 10336                  | 23371                 | 36981             | 0.84                 | 7.7E-02                                       | AJ318662.1               | EST_HUMAN                     | ts80b08.t1 NCL CGAP_HSC2 Homo sapiens cDNA clone IMAGE:2050359 3' similar to gb:Z26876 60S  |
| 10336                  | 23371                 | 36982             | 0.84                 | 7.7E-02                                       | AJ318662.1               | EST_HUMAN                     | REBOSOMAL PROTEIN L38 (HUMAN);  |
| 11262                  | 24331                 | 37072             | 3.08                 | 7.7E-02                                       | 11427157                 | NT                            | REBOSOMAL PROTEIN L38 (HUMAN);  |
| 3474                   | 16641                 | 28980             | 3.1                  | 7.6E-02                                       | BE514492.1               | EST_HUMAN                     | Homo sapiens KIAA0628 gene product (KIAA0628), mRNA   |
| 3494                   | 16651                 | 29673             | 0.98                 | 7.6E-02                                       | AA286447.1               | EST_HUMAN                     | 601316426F1 NIH_MGC_8 Homo sapiens cDNA clone IMAGE:3634903 5'  |
| 3649                   | 16812                 | 29825             | 0.96                 | 7.6E-02                                       | AJ400877.1               | NT                            | EST112214 Cerebellum II Homo sapiens cDNA 5' and similar to similar to protodactherin 43  |
| 6222                   | 19397                 | 32746             | 0.69                 | 7.6E-02                                       | AI051275.1               | EST_HUMAN                     | Homo sapiens ASCL3 gene, CEGP1 gene, C11orf14 gene, C11orf15 gene, C11orf16 gene and C11orf17 gene  |
| 6486                   | 19653                 | 33015             | 1.14                 | 7.6E-02                                       | BE376326.1               | EST_HUMAN                     | en25g02.x1 Gessler Wilms tumor Homo sapiens cDNA clone IMAGE:1699730 3'   |
| 6570                   | 22712                 | 36280             | 1.11                 | 7.6E-02                                       | AJ131016.1               | NT                            | 601238402F1 NIH_MGC_44 Homo sapiens cDNA clone IMAGE:3608401 5'   |
| 10101                  | 23139                 |                   | 0.99                 | 7.6E-02                                       | AL198078.2               | NT                            | Homo sapiens SOL gene locus   |
| 10424                  | 23459                 | 37064             | 0.5                  | 7.6E-02                                       | BE708002.1               | EST_HUMAN                     | Homo sapiens SOL gene locus   |
| 10557                  | 23592                 |                   | 1.04                 | 7.6E-02                                       | BE959836.2               | EST_HUMAN                     | Campylobacter jejuni NGCT11168 complete genome, segment 5/6   |
| 10815                  | 23848                 | 37468             | 0.97                 | 7.6E-02                                       | X92658.1                 | NT                            | RC1-HT0545-020800-017-d08 HT0545 Homo sapiens cDNA  |
|                        |                       |                   |                      |   |                          |                               | 601654916F1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:38339810 3'  |
|                        |                       |                   |                      |   |                          |                               | L-asculetum mRNA for trione phosphatase translocator  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 10815                  | 23848                 | 37470             | 0.97                 | 7.6E-02                                       | X92656.1                 | NT                            | Lescularium mRNA for triose phosphate translocator  |
| 11874                  | 24959                 | 38861             | 1.93                 | 7.6E-02                                       | AW896646.1               | EST_HUMAN                     | QV3-BN0046-160400-161-e04 BN0046 Homo sapiens cDNA  |
| 807                    | 13987                 | 27039             | 1.86                 | 7.5E-02                                       | 5902093                  | NT                            | Homo sapiens solute carrier family 6 (neurotransmitter transporter, glycine), member 9 (SLC6A9), mRNA |
| 807                    | 13987                 | 27040             | 1.86                 | 7.5E-02                                       | 5902093                  | NT                            | Homo sapiens solute carrier family 6 (neurotransmitter transporter, glycine), member 9 (SLC6A9), mRNA |
| 1971                   | 15114                 | 28214             | 0.89                 | 7.5E-02                                       | AL163278.2               | NT                            | Homo sapiens chromosome 21 segment HS21C078   |
| 4630                   | 17768                 | 30748             | 0.74                 | 7.5E-02                                       | AB015961.1               | NT                            | Homo sapiens IL-18 gene for interleukin-18, intron 1 and exon 2                                       |
| 5974                   | 19158                 | 32477             | 1.45                 | 7.5E-02                                       | A948714.1                | EST_HUMAN                     | wq24f09.x1 NCL_CGAP_Kid11 Homo sapiens cDNA clone IMAGE:2472267 3'                                    |
| 8533                   | 21614                 | 35150             | 1.28                 | 7.6E-02                                       | A1884387.1               | EST_HUMAN                     | wf52b02.x1 NCL_CGAP_Bm25 Homo sapiens cDNA clone IMAGE:2428491 3' similar to gb:M14328 ALPHA          |
| 8705                   | 21785                 | 35318             | 1.36                 | 7.5E-02                                       | AU116913.1               | EST_HUMAN                     | ENOLASE (HUMAN);  |
| 10238                  | 28273                 |                   | 0.49                 | 7.5E-02                                       | BF221730.1               | EST_HUMAN                     | AU116813 HEMBA1 Homo sapiens cDNA clone HEMBA1000264 5'   |
| 10711                  | 23744                 | 37950             | 0.73                 | 7.5E-02                                       | BF206809.1               | EST_HUMAN                     | 7c61c05.x1 NCL_CGAP_P128 Homo sapiens cDNA clone IMAGE:3578504 3' similar to contains element         |
| 10816                  | 23849                 | 37471             | 0.82                 | 7.5E-02                                       | X78480.1                 | NT                            | MER27 repetitive element;   |
| 490                    | 13884                 | 26718             | 1.41                 | 7.4E-02                                       | AW838647.1               | EST_HUMAN                     | 601870205F1 NIH_MGC_19 Homo sapiens cDNA clone IMAGE:4100449 5'                                       |
| 1488                   | 14642                 |                   | 1.21                 | 7.4E-02                                       | AF030027.1               | NT                            | Cifim DSM 207113 16S rDNA   |
| 2848                   | 15771                 |                   | 0.96                 | 7.4E-02                                       | 6759069                  | NT                            | RC5-LT0054-260100-011-H09 LT0054 Homo sapiens cDNA  |
| 3683                   | 16848                 | 28854             | 1.21                 | 7.4E-02                                       | A1807885.1               | EST_HUMAN                     | Equine herpesvirus 4 strain NS80567, complete genome  |
| 4828                   | 17959                 | 30948             | 1.19                 | 7.4E-02                                       | L78810.1                 | NT                            | Mus musculus paired-like homeodomain transcription factor 1 (Pitx1), mRNA                             |
| 4814                   | 18044                 | 31034             | 2.65                 | 7.4E-02                                       | L78810.1                 | NT                            | wf49h01.x1 Soares_NFL_I_GBC_S1 Homo sapiens cDNA clone IMAGE:2358385 3'                               |
| 5056                   | 18184                 | 31159             | 4.42                 | 7.4E-02                                       | R17477.1                 | EST_HUMAN                     | Homo sapiens ADP/ATP carrier protein (ANT-2) gene, complete cds                                       |
| 6824                   | 19784                 |                   | 1.89                 | 7.4E-02                                       | 8678462                  | NT                            | Rattus norvegicus Actin receptor like kinase 1 (Acril1), mRNA   |
| 6717                   | 19875                 | 33268             | 0.86                 | 7.4E-02                                       | AF030422.1               | NT                            | Mus musculus ubiquitin c-terminal hydrolase related polypeptide (Uchrrp), mRNA                        |
| 7636                   | 20705                 | 34184             | 0.84                 | 7.4E-02                                       | AA005132.1               | EST_HUMAN                     | y914g08.f1 Soares infant brain 1NIB Homo sapiens cDNA clone IMAGE:32339 5'                            |
| 8085                   | 21167                 | 34883             | 1.11                 | 7.4E-02                                       | BE880112.1               | EST_HUMAN                     | Electrophorus electricus acetylcholinesterase catalytic subunit precursor gene, complete cds          |
| 8698                   | 21778                 | 35312             | 1.26                 | 7.4E-02                                       | U56088.1                 | NT                            | no71d02.g1 NCL_CGAP_AA1 Homo sapiens cDNA clone IMAGE:1112269 3'                                      |
| 9387                   | 22442                 | 36002             | 1.08                 | 7.4E-02                                       | AW629805.1               | EST_HUMAN                     | 801483398F1 NIH_MGC_69 Homo sapiens cDNA clone IMAGE:3885264 5'                                       |
| 9387                   | 22442                 | 36003             | 1.08                 | 7.4E-02                                       | AW629805.1               | EST_HUMAN                     | Human peroxide tryptophan protein 2 (PWP2) gene, exons 15 to 21, and complete cds                     |
| 9639                   | 21082                 | 34583             | 0.58                 | 7.4E-02                                       | A1672839.1               | EST_HUMAN                     | h67d1.y1 NCL_CGAP_GU1 Homo sapiens cDNA clone IMAGE:2967861 5' similar to SW:SCA2_HUMAN               |
| 9639                   | 21082                 | 34584             | 0.58                 | 7.4E-02                                       | A1672839.1               | EST_HUMAN                     | O15127 SECRETORY CARRIER-ASSOCIATED MEMBRANE PROTEIN 2 ;  |
|                        |                       |                   |                      |   |                          |                               | h67d1.y1 NCL_CGAP_GU1 Homo sapiens cDNA clone IMAGE:2967861 5' similar to SW:SCA2_HUMAN               |
|                        |                       |                   |                      |   |                          |                               | O15127 SECRETORY CARRIER-ASSOCIATED MEMBRANE PROTEIN 2 ;  |
|                        |                       |                   |                      |   |                          |                               | wf74d02.x1 Soares_Dieckgraefe_colon_NHCD Homo sapiens cDNA clone IMAGE:2346819 3'                     |
|                        |                       |                   |                      |   |                          |                               | wf74d02.x1 Soares_Dieckgraefe_colon_NHCD Homo sapiens cDNA clone IMAGE:2346819 3'                     |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 10019                  | 23067                 | 36663             | 1                    | 7.4E-02                                       | U62283.1                 | NT                            | Human LIM-kinase1 and alternatively spliced LIM-kinase1 (LIMK1) gene, complete cds                              |
| 10148                  | 23184                 | 36780             | 0.49                 | 7.4E-02                                       | BF512678.1               | EST_HUMAN                     | UHF-BW1-amp-9-06-0-UI.s1 NCI CGAP_Sub7 Homo sapiens cDNA clone IMAGE:3069898 3'                                 |
| 11266                  | 24335                 | 37875             | 1.46                 | 7.4E-02                                       | AA059167.1               | EST_HUMAN                     | z64e01.1 Soares retina N264-R Homo sapiens cDNA clone IMAGE:381720 5'   |
| 11914                  | 24001                 | 36604             | 1.42                 | 7.4E-02                                       | AI125063.1               | EST_HUMAN                     | aa01407.s1 Barstead aorta HPL RB3 Homo sapiens cDNA clone IMAGE:1726285 3' similar to gb:IM88492                |
| 12408                  | 26288                 |                   | 1.22                 | 7.4E-02                                       | 11525893                 | NT                            | GLIA MATURATION FACTOR BETA (HUMAN);  |
| 12692                  | 26101                 |                   | 3.74                 | 7.4E-02                                       | AW379431.1               | EST_HUMAN                     | Homo sapiens histone deacetylase 5 (NY-CO-9), mRNA  |
| 12870                  | 26580                 | 31995             | 2.61                 | 7.4E-02                                       | BF035088.1               | EST_HUMAN                     | OM4-HT0243-081199-037-411 HT0243 Homo sapiens cDNA  |
| 12882                  | 25585                 | 31968             | 1.44                 | 7.4E-02                                       | AJ223469.2               | NT                            | 001453813F1 NIH_MGC_66 Homo sapiens cDNA clone IMAGE:3867738 5'   |
| 481                    | 13676                 | 26708             | 1.15                 | 7.3E-02                                       | BE964961.2               | EST_HUMAN                     | Aspergillus nidulans pmD, pmX, pmA genes  |
| 481                    | 13676                 | 26709             | 1.15                 | 7.3E-02                                       | BE964961.2               | EST_HUMAN                     | 001658738R1 NIH_MGC_66 Homo sapiens cDNA clone IMAGE:3868209 3'   |
| 702                    | 13885                 | 26917             | 2.66                 | 7.3E-02                                       | AE001789.1               | EST_HUMAN                     | 001658738R1 NIH_MGC_66 Homo sapiens cDNA clone IMAGE:3868209 3'   |
| 1510                   | 16040                 | 27748             | 3.26                 | 7.3E-02                                       | AW900281.1               | EST_HUMAN                     | Thermotoga maritima section 101 of 136 of the complete genome   |
| 1883                   | 16050                 |                   | 15.79                | 7.3E-02                                       | AL163302.2               | NT                            | CM0-NN1004-130300-284-08 NN1004 Homo sapiens cDNA   |
| 5112                   | 18240                 |                   | 1.02                 | 7.3E-02                                       | U12283.1                 | NT                            | Homo sapiens chromosome 21 segment HS21C102   |
| 6682                   | 19744                 | 33126             | 1.46                 | 7.3E-02                                       | AA779977.1               | EST_HUMAN                     | Mus musculus transcription factor USF2 (USF2) gene, exons 8-10 and complete cds                                 |
| 7633                   | 20702                 | 34180             | 2.37                 | 7.3E-02                                       | P06143                   | SWISSPROT                     | z24e02.s1 Soares_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:451178 3' similar to                 |
| 7633                   | 20702                 | 34181             | 2.37                 | 7.3E-02                                       | P06143                   | SWISSPROT                     | gb:U02426 26S PROTEASE SUBUNIT 4 (HUMAN);   |
| 7681                   | 21030                 |                   | 0.58                 | 7.3E-02                                       | BF316067.1               | EST_HUMAN                     | PROLINE-RICH PROTEIN MP-3   |
| 8361                   | 21442                 |                   | 1.36                 | 7.3E-02                                       | 7682107                  | NT                            | PROLINE-RICH PROTEIN MP-3   |
| 8598                   | 21677                 | 35214             | 0.5                  | 7.3E-02                                       | Y10887.2                 | NT                            | 001688047F1 NIH_MGC_19 Homo sapiens cDNA clone IMAGE:4126615 5'   |
| 9411                   | 22485                 |                   | 1.17                 | 7.3E-02                                       | AB011090.1               | NT                            | Homo sapiens KIAA0424 protein (KIAA0424), mRNA  |
| 11482                  | 19744                 | 33126             | 1.78                 | 7.3E-02                                       | AA779977.1               | EST_HUMAN                     | Mus musculus cdh5 gene, exon 1, partial   |
| 122                    | 13362                 | 26382             | 0.5                  | 7.2E-02                                       | AED00882.1               | NT                            | Homo sapiens mRNA for KIAA0518 protein, partial cds   |
| 122                    | 13362                 | 26383             | 0.5                  | 7.2E-02                                       | AED00882.1               | NT                            | z24e02.s1 Soares_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:451178 3' similar to                 |
| 1505                   | 14658                 | 27739             | 2.5                  | 7.2E-02                                       | AL163301.2               | NT                            | gb:U02426 26S PROTEASE SUBUNIT 4 (HUMAN);   |
| 1505                   | 14658                 | 27740             | 2.5                  | 7.2E-02                                       | AL163301.2               | NT                            | Methanobacterium thermosulphophilum from bases 1028155 to 1039834 (section 88 of 148) of the complete genome    |
| 2614                   | 16738                 |                   | 3.34                 | 7.2E-02                                       | U14794.1                 | NT                            | Methanobacterium thermosulphophilum from bases 1028155 to 1039834 (section 88 of 148) of the complete genome    |
| 3081                   | 17148                 | 30154             | 0.63                 | 7.2E-02                                       | AW298322.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C101   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens chromosome 21 segment HS21C101   |
|                        |                       |                   |                      |   |                          |                               | Human immunodeficiency virus type 1 isolate 26 reverse transcriptase (pol) gene, internal fragment, partial cds |
|                        |                       |                   |                      |   |                          |                               | UHF-BW0-ql-e-05-0-UI.s1 NCI CGAP_Sub6 Homo sapiens cDNA clone IMAGE:2732049 3'                                  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 4465                   | 17605                 | 30583             | 3.07                 | 7.2E-02                                       | BF572307.1               | EST_HUMAN                     | 602077757F1 NIH_MGC_62 Homo sapiens cDNA clone IMAGE:4251850 5'  |
| 5402                   | 18604                 | 31576             | 2.78                 | 7.2E-02                                       | U67331.1                 | NT                            | Methanococcus jannaschii section 73 of 150 of the complete genome  |
| 5403                   | 18605                 | 31577             | 8.76                 | 7.2E-02                                       | P11120                   | SWISSPROT                     | CALMODULIN   |
| 6244                   | 19418                 |                   | 1.11                 | 7.2E-02                                       | BF217596.1               | EST_HUMAN                     | 601883903F1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:4086224 5'  |
| 7318                   | 20400                 | 33963             | 1.32                 | 7.2E-02                                       | BF216086.1               | EST_HUMAN                     | 601883558F1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:4095710 5'  |
| 7335                   | 20416                 | 33878             | 0.7                  | 7.2E-02                                       | AF221126.1               | NT                            | Streptococcus pneumoniae putative response regulator (zmpR), putative histidine kinase (zmpS), and putative zinc metalloprotease (zmpB) genes, complete cds                                      |
| 7359                   | 20438                 |                   | 1.53                 | 7.2E-02                                       | 6634887                  | NT                            | Strongyloides purpuratus mitochondrion, complete genome  |
| 8982                   | 21463                 | 34987             | 0.8                  | 7.2E-02                                       | P05143                   | SWISSPROT                     | PROLINE-RICH PROTEIN MP-3  |
| 8982                   | 21463                 | 34988             | 0.6                  | 7.2E-02                                       | P05143                   | SWISSPROT                     | PROLINE-RICH PROTEIN MP-3  |
| 8264                   | 22341                 |                   | 0.57                 | 7.2E-02                                       | Y17217.1                 | NT                            | Lactococcus lactis cepE gene   |
| 9775                   | 22815                 |                   | 0.51                 | 7.2E-02                                       | X16349.1                 | NT                            | Human gene for sex hormone-binding globulin (SHBG)   |
| 9811                   | 22861                 | 36430             | 2.19                 | 7.2E-02                                       | AV712452.1               | EST_HUMAN                     | AV712452 DCA Homo sapiens cDNA clone DCAU0301 5'   |
| 9891                   | 23000                 | 36596             | 4.98                 | 7.2E-02                                       | L14561.1                 | NT                            | Homo sapiens plasma membrane calcium ATPase isoform 1 (ATP2B1) gene, alternative splice products, partial cds  |
| 10118                  | 23166                 | 36754             | 0.96                 | 7.2E-02                                       | BF125399.1               | EST_HUMAN                     | 601766323F1 NIH_MGC_20 Homo sapiens cDNA clone IMAGE:4029496 5'  |
| 10206                  | 23242                 | 36833             | 2.34                 | 7.2E-02                                       | AW873187.1               | EST_HUMAN                     | h24f11.x1 NCI_CGAP_Adr1 Homo sapiens cDNA clone IMAGE:3120333 3' similar to TR-Q82340 Q82340   |
| 10395                  | 23430                 | 37037             | 0.8                  | 7.2E-02                                       | AA768204.1               | EST_HUMAN                     | ATYPICAL PKC SPECIFIC BINDING PROTEIN. ;   |
|                        |                       |                   |                      |   |                          |                               | 662a07.s1 NCI_CGAP_G051 Homo sapiens cDNA clone IMAGE:1316844 3'   |
| 10560                  | 23595                 | 37201             | 2.15                 | 7.2E-02                                       | U82695.2                 | NT                            | Homo sapiens zinc finger protein 92 (ZFP92), expressed-Xq28STS protein (XQ28ORF), and biglycan (BGN) genes, complete cds; and plasma membrane calcium ATPase isoform 3 (PMCA3) gene, partial cds |
| 10692                  | 23725                 | 37331             | 5.57                 | 7.2E-02                                       | BE565003.1               | EST_HUMAN                     | 601943928F1 NIH_MGC_53 Homo sapiens cDNA clone IMAGE:3685951 5'  |
| 10716                  | 23749                 |                   | 3.47                 | 7.2E-02                                       | BE530214.1               | EST_HUMAN                     | 601065194F1 NIH_MGC_10 Homo sapiens cDNA clone IMAGE:3451559 5'  |
| 10837                  | 23870                 | 37492             | 0.55                 | 7.2E-02                                       | AA706997.1               | EST_HUMAN                     | z28h05.s1 Soares_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:451041 3'   |
| 11153                  | 24224                 | 37853             | 4.14                 | 7.2E-02                                       | AF049874.1               | NT                            | Rattus norvegicus bHLH transcription factor Mst1 (Mist1) gene, complete cds  |
| 12316                  | 25230                 | 32104             | 2.12                 | 7.2E-02                                       | AA773698.1               | EST_HUMAN                     | af81a04.r1 Soares_NihMIPu_S1 Homo sapiens cDNA clone IMAGE:1046398 5'  |
| 12350                  | 25253                 |                   | 3.63                 | 7.2E-02                                       | AJ230706.1               | EST_HUMAN                     | AJ230706 Homo sapiens library (Seranski P) Homo sapiens cDNA clone PS13D5 3'   |
| 12411                  | 25290                 |                   | 2.05                 | 7.2E-02                                       | AA584465.1               | EST_HUMAN                     | nc05108.s1 NCI_CGAP_Phe1 Homo sapiens cDNA clone IMAGE:1099839 3'  |
| 12474                  | 25327                 |                   | 4.23                 | 7.2E-02                                       | U82628.1                 | NT                            | Homo sapiens abata telangiectasia (ATM) gene, complete cds   |
| 12498                  | 25697                 |                   | 7.37                 | 7.2E-02                                       | AW000682.1               | EST_HUMAN                     | GM4-NIN1009-200300-110-c11 NN1008 Homo sapiens cDNA  |
| 13048                  | 25687                 |                   | 1.63                 | 7.2E-02                                       | AA401779.1               | EST_HUMAN                     | z57c12.r1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:728454 5'  |
| 1953                   | 15096                 | 28197             | 2.05                 | 7.1E-02                                       | L02280.1                 | NT                            | Human Immunodeficiency virus type 1 (D9) proviral structural capsid protein (gag) gene, partial cds  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 2368                   | 15497                 | 28623             | 6.8                  | 7.1E-02                                       | BF208802.1               | EST_HUMAN                     | 601872281F1 NIH_MGC_63 Homo sapiens cDNA clone IMAGE:4092081 5'                              |
| 8091                   | 21173                 | 34687             | 1.06                 | 7.1E-02                                       | AI125284.1               | EST_HUMAN                     | q52a10.x1 Soares_basilia_NHT Homo sapiens cDNA clone IMAGE:1738922 3'                        |
| 10896                  | 23898                 | 37521             | 0.63                 | 7.1E-02                                       | AL163248.2               | NT                            | Homo sapiens chromosome 21 segment HS21C046  |
| 12193                  | 25150                 |                   | 6.46                 | 7.1E-02                                       | BE304764.1               | EST_HUMAN                     | 601143974F1 NIH_MGC_15 Homo sapiens cDNA clone IMAGE:3051234 5'                              |
| 641                    | 13734                 | 26758             | 1.4                  | 7.0E-02                                       | Q07092                   | SWISSPROT                     | COLLAGEN ALPHA 1(XV) CHAIN PRECURSOR   |
| 1529                   | 14682                 |                   | 1.28                 | 7.0E-02                                       | X06877.1                 | NT                            | Martellia Micut-1 gene   |
| 1801                   | 14950                 | 28044             | 1.18                 | 7.0E-02                                       | AA056343.1               | EST_HUMAN                     | z166f04.s1 Sitratogene colon (#637204) Homo sapiens cDNA clone IMAGE:5065599 3'              |
| 3095                   | 16271                 | 26286             | 2.02                 | 7.0E-02                                       | AW138152.1               | EST_HUMAN                     | UIH-B11-acy-o-07-0-JUL.e1 NCL_CGAP_Sub3 Homo sapiens cDNA clone IMAGE:2716020 3'             |
| 4004                   | 17161                 | 30167             | 0.65                 | 7.0E-02                                       | AA815438.1               | EST_HUMAN                     | a65e12.s1 Soares_basilia_NHT Homo sapiens cDNA clone 1376678 3' similar to gb:K03002 60S     |
| 4155                   | 17307                 | 30301             | 1.19                 | 7.0E-02                                       | BE070264.1               | EST_HUMAN                     | RIBOSOMAL PROTEIN L32 (HUMAN);   |
| 4268                   | 17403                 |                   | 1.14                 | 7.0E-02                                       | AW792862.1               | EST_HUMAN                     | QV4-BT0407-280100-080-e10 BT0407 Homo sapiens cDNA   |
| 4330                   | 17473                 | 30468             | 1.16                 | 7.0E-02                                       | AF071821.1               | NT                            | GM0-JM0001-060300-270-e12 UM0001 Homo sapiens cDNA   |
| 5045                   | 18173                 | 31150             | 7.87                 | 7.0E-02                                       | BF381987.1               | EST_HUMAN                     | Canis familiaris Inducible nitric oxide synthase mRNA, complete cds                          |
| 5493                   | 18692                 |                   | 0.82                 | 7.0E-02                                       | Y09143.2                 | NT                            | 601816291F1 NIH_MGC_56 Homo sapiens cDNA clone IMAGE:4050071 5'                              |
| 7560                   | 20632                 | 34107             | 0.9                  | 7.0E-02                                       | AV689285.1               | EST_HUMAN                     | Lumbricus rubellus mRNA for cyclophilin B  |
| 7782                   | 20638                 | 34331             | 0.68                 | 7.0E-02                                       | Y19187.1                 | NT                            | AV689285 GK Homo sapiens cDNA clone GK0CAE06 5'  |
| 9299                   | 22375                 | 35928             | 1.24                 | 7.0E-02                                       | 9828113                  | NT                            | Gallus gallus mRNA for partial ezrin, XL spliced variant (acc gene)                          |
| 9797                   | 22837                 | 38416             | 1.31                 | 7.0E-02                                       | K02901.1                 | NT                            | African swine fever virus, complete genome   |
| 10158                  | 23195                 | 36791             | 0.88                 | 7.0E-02                                       | U27268.1                 | NT                            | Rat Ig gamma epsilon H-chain gene C-region, 3' end   |
| 11654                  | 24733                 | 38424             | 2.6                  | 7.0E-02                                       | AA724295.1               | EST_HUMAN                     | Human myosin binding protein H (MyBP-H) gene, complete cds                                   |
| 13022                  | 25673                 | 31958             | 1.2                  | 7.0E-02                                       | 11421638                 | NT                            | ah89a05.s1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:1327184 3' similar to gb:U14837 |
| 527                    | 13720                 | 26744             | 7.08                 | 6.9E-02                                       | AL163210.2               | NT                            | TKHT JUNCTION PROTEIN ZO-1 (HUMAN);  |
| 627                    | 13720                 | 26745             | 7.08                 | 6.9E-02                                       | AL163210.2               | NT                            | Homo sapiens hypothetical protein FLJ20118 (FLJ20118), mRNA                                  |
| 1364                   | 14518                 |                   | 1.58                 | 6.9E-02                                       | 4507868                  | NT                            | Homo sapiens chromosome 21 segment HS21C010  |
| 3893                   | 17052                 | 30051             | 1.34                 | 6.9E-02                                       | Q06364                   | SWISSPROT                     | Homo sapiens chromosome 21 segment HS21C010  |
| 3893                   | 17052                 | 30052             | 1.34                 | 6.9E-02                                       | Q06364                   | SWISSPROT                     | Homo sapiens chromosome 21 segment HS21C010  |
| 5302                   | 18419                 | 31389             | 4.11                 | 6.9E-02                                       | Z70763.1                 | NT                            | 26S PROTEASOME REGULATORY SUBUNIT S3 (NUCLEAR ANTIGEN 21D7)                                  |
| 5316                   | 18433                 | 31403             | 0.83                 | 6.9E-02                                       | M04956.1                 | NT                            | 26S PROTEASOME REGULATORY SUBUNIT S3 (NUCLEAR ANTIGEN 21D7)                                  |
| 7793                   | 20649                 |                   | 0.87                 | 6.9E-02                                       | AF164957.1               | NT                            | H sapiens flow-sorted chromosome 6 HindIII fragment, SCpA24F7                                |
| 8242                   | 21324                 |                   | 1.14                 | 6.9E-02                                       | U12022.1                 | NT                            | M.hyalinilis 115 kDa protein (P115) gene, complete cds                                       |
| 8750                   | 21829                 | 36386             | 1.01                 | 6.9E-02                                       | BE587435.1               | EST_HUMAN                     | Canine distemper virus strain A78/17, complete genome  |
|                        |                       |                   |                      |   |                          |                               | Human calmodulin (CALM1) gene, exons 2,3,4,5 and 6, and complete cds                         |
|                        |                       |                   |                      |   |                          |                               | 801340661F1 NIH_MGC_53 Homo sapiens cDNA clone IMAGE:3685050 5'                              |

Page 137 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E-<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|--|--------------------------|-------------------------------|--|
| 8760                   | 21829                 | 35397             | 1.01                 | 6.8E-02  | BE567435.1               | EST_HUMAN                     | 601340661F1 NIH_MGC_53 Homo sapiens cDNA clone IMAGE:3683030 5'  |
| 9320                   | 22368                 | 35949             | 0.87                 | 6.0E-02  | U22987.1                 | NT                            | Barbaric duck parvovirus REP protein (rep) and three capsid protein VP (vp) genes, complete cds  |
| 11374                  | 24435                 | 38092             | 1.46                 | 0.9E-02  | S81752.1                 | NT                            | DIPH2L -candidate tumor suppressor gene (ovarian cancer critical region of deletion) [human, 9 week fetal and placental tissues, mRNA, 2233 nt]  |
| 11374                  | 24435                 | 38093             | 1.46                 | 6.8E-02  | S81752.1                 | NT                            | DIPH2L -candidate tumor suppressor gene (ovarian cancer critical region of deletion) [human, 9 week fetal and placental tissues, mRNA, 2233 nt]  |
| 12346                  | 25251                 |                   | 10.94                | 6.8E-02  | X74315.1                 | NT                            | X laevis XFD2 mRNA for fork head protein   |
| 12624                  | 25357                 |                   | 1.58                 | 6.8E-02  | P44821                   | SWISSPROT                     | PROTEIN TRANSPORT PROTEIN HOF6 HOMOLOG   |
| 12770                  | 25513                 |                   | 3.37                 | 6.9E-02  | AF195863.1               | NT                            | Homo sapiens membrane-bound aminopeptidase P (ANPEP2) gene, complete cds   |
| 1932                   | 15075                 | 28177             | 1.18                 | 6.8E-02  | AA498759.1               | EST_HUMAN                     | es30f02.r1 Gessler Wilms tumor Homo sapiens cDNA clone IMAGE:897339 5' similar to gbt:M22382   |
| 1932                   | 15075                 | 28178             | 1.18                 | 6.8E-02  | AA498759.1               | EST_HUMAN                     | MITOCHONDRIAL MATRIX PROTEIN P1 PRECURSOR (HUMAN);   |
| 1956                   | 15099                 | 28199             | 3.85                 | 6.8E-02  | AF156873.1               | NT                            | es30f02.r1 Gessler Wilms tumor Homo sapiens cDNA clone IMAGE:897339 5' similar to gbt:M22382   |
| 4876                   | 17810                 |                   | 0.94                 | 6.8E-02  | BE141076.1               | EST_HUMAN                     | MITOCHONDRIAL MATRIX PROTEIN P1 PRECURSOR (HUMAN);   |
| 6768                   | 19914                 |                   | 0.85                 | 6.8E-02  | P20792                   | SWISSPROT                     | MR0-HT0069-071089-001-c05 HT0069 Homo sapiens cDNA   |
| 7040                   | 20093                 | 33981             | 0.99                 | 6.8E-02  | BE061890.1               | EST_HUMAN                     | CELL-SURFACE RECEPTOR DAF-1 PRECURSOR  |
| 7432                   | 20919                 | 34420             | 8.22                 | 6.8E-02  | AL163286.2               | NT                            | RG1-BT0254-090300-017-008 BT0254 Homo sapiens cDNA   |
| 7891                   | 20915                 |                   | 0.9                  | 6.8E-02  | U16858.1                 | NT                            | Homo sapiens chromosome 21 segment HS21C0068   |
| 8483                   | 21584                 | 35099             | 0.03                 | 6.8E-02  | AJ248287.1               | NT                            | Dicystostellium discoideum myosin heavy chain kinase A (MHCK A) mRNA, complete cds   |
| 8483                   | 21584                 | 35100             | 0.03                 | 6.8E-02  | AJ248287.1               | NT                            | Pyrococcus abyssi complete genome, segment 516   |
| 12141                  | 28166                 |                   | 1.47                 | 6.8E-02  | T03214.1                 | NT                            | Pyrococcus abyssi complete genome, segment 516   |
| 12276                  | 25208                 |                   | 1.84                 | 6.8E-02  | AA758014.1               | EST_HUMAN                     | FBAA48 Fetal brain, Stratiogene Homo sapiens cDNA clone FBAA48 3'end similar to LINE-1   |
| 12906                  | 25598                 |                   | 1.34                 | 6.8E-02  | AW875839.1               | EST_HUMAN                     | ab67705.s1 Soares, testis, NHT Homo sapiens cDNA clone 1320705 3'  |
| 12972                  | 25692                 |                   | 2.3                  | 6.8E-02  |                          | EST_HUMAN                     | ES7987948 IMAGE resequences, MAGN Homo sapiens cDNA  |
| 13203                  | 26091                 | 31660             | 1.24                 | 6.8E-02  | AF116839.1               | NT                            | Mus musculus latent TGF beta binding protein (Tgfb), mRNA  |
| 1658                   | 14711                 |                   | 2.71                 | 6.7E-02  | AF116839.1               | NT                            | Rattus norvegicus Growth factor independent-1 (Gfi1), mRNA   |
| 1942                   | 16086                 | 28188             | 2.17                 | 6.7E-02  | AJ20285.1                | EST_HUMAN                     | Oncorhynchus mykiss TAP1 protein (OmyTAP1) mRNA, OmyTAP1*01 allele, complete cds   |
| 3811                   | 16971                 | 29973             | 4.48                 | 6.7E-02  | P17278                   | SWISSPROT                     | q978604.x1 Soares, NFL T, GBC S1 Homo sapiens cDNA clone IMAGE:1841406 3'  |
| 4065                   | 17221                 | 30229             | 0.74                 | 6.7E-02  | U63783.1                 | NT                            | HOMEOBOX PROTEIN HOXD-4 (HOXA-4)   |
| 4065                   | 17221                 | 30230             | 0.74                 | 6.7E-02  | U63783.1                 | NT                            | Cyprinus carpio Rap1b mRNA, complete cds   |
| 7969                   | 21019                 | 34532             | 0.86                 | 6.7E-02  | W57759.1                 | EST_HUMAN                     | Cyprinus carpio Rap1b mRNA, complete cds   |
| 8034                   | 21117                 | 34635             | 0.74                 | 6.7E-02  | X62895.1                 | NT                            | zid20g11.s1 Soares, fetal heart_NhrH19W Homo sapiens cDNA clone IMAGE:341252 3' similar to contains<br>Alu repetitive element; contains element L1 repetitive element;<br>H. sapiens DNA for cGMP phosphodiesterase (exons 4-22) |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO. | Exon<br>SEQ ID<br>NO. | ORF SEQ<br>ID NO. | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 8034                   | 21117                 | 34638             | 0.74                 | 6.7E-02                                       | X62895.1                 | NT                            | H.sapiens DNA for cGMP phosphodiesterase (exons 4-22)  |
| 8633                   | 21713                 | 35260             | 0.73                 | 6.7E-02                                       | AW082688.1               | EST_HUMAN                     | pc61c11.x1 Soares_NFL_I_GBC_S1 Homo sapiens cDNA clone IMAGE:2580788 3'  |
| 9800                   | 22840                 | 36417             | 0.58                 | 6.7E-02                                       | AW137359.1               | EST_HUMAN                     | UIH-B11-ecr-g-01-0-JL.s1 NCI CGAP Sub3 Homo sapiens cDNA clone IMAGE:2716433 3'  |
| 9800                   | 22840                 | 36418             | 0.59                 | 6.7E-02                                       | AW137359.1               | EST_HUMAN                     | UIH-B11-ecr-g-01-0-JL.s1 NCI CGAP Sub3 Homo sapiens cDNA clone IMAGE:2716433 3'  |
| 1378                   | 14534                 | 27608             | 0.98                 | 6.8E-02                                       | A1735509.1               | EST_HUMAN                     | at12a09.x1 Burstead aceta HPLR88 Homo sapiens cDNA clone IMAGE:2354920 3' similar to SW:LIN1_NYCCO P08548 LINE-1 REVERSE TRANSCRIPTASE HOMOLOG. ;            |
| 2282                   | 15385                 | 28513             | 3.73                 | 6.8E-02                                       | AJ289241.1               | NT                            | Mus musculus Capon12 gene for calpain 12, exons 1-21, three alternative transcripts  |
| 3552                   | 16717                 | 29731             | 12.38                | 6.8E-02                                       | R84306.1                 | EST_HUMAN                     | y18b10.s1 Soares placenta Nb2HP Homo sapiens cDNA clone IMAGE:139578 3'  |
| 3557                   | 16732                 | 29748             | 3.11                 | 6.8E-02                                       | 7108357                  | NT                            | Homo sapiens mesothelin (MSLN), transcript variant 1, mRNA   |
| 3567                   | 16732                 | 29749             | 3.11                 | 6.8E-02                                       | 7108357                  | NT                            | Homo sapiens mesothelin (MSLN), transcript variant 1, mRNA   |
| 4191                   | 17341                 | 30334             | 1.61                 | 6.8E-02                                       | AF280225.1               | NT                            | Homo sapiens TESTIN 2 and TESTIN 3 genes, complete cds, alternatively spliced  |
| 5083                   | 18221                 | 31191             | 12.07                | 6.8E-02                                       | Q81703                   | SWISSPROT                     | INTER-ALPHA-TRYPsin INHIBITOR HEAVY CHAIN H2 PRECURSOR (ITI HEAVY CHAIN H2)  |
| 5093                   | 18221                 | 31192             | 12.07                | 6.8E-02                                       | Q81703                   | SWISSPROT                     | INTER-ALPHA-TRYPsin INHIBITOR HEAVY CHAIN H2 PRECURSOR (ITI HEAVY CHAIN H2)  |
| 5130                   | 18255                 | 31220             | 0.84                 | 6.8E-02                                       | AA383244.1               | EST_HUMAN                     | 274407.J1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:728052 5' similar to gb:104270 TUMOR NECROSIS FACTOR RECEPTOR 2 RELATED PROTEIN PRECURSOR (HUMAN); |
| 6130                   | 18255                 | 31221             | 0.84                 | 6.8E-02                                       | AA383244.1               | EST_HUMAN                     | 274407.J1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:728052 5' similar to gb:104270 TUMOR NECROSIS FACTOR RECEPTOR 2 RELATED PROTEIN PRECURSOR (HUMAN); |
| 6714                   | 19872                 | 33284             | 3.92                 | 6.8E-02                                       | X08411.1                 | NT                            | P.vulgaris mRNA for chalcone synthase  |
| 6749                   | 19905                 | 33298             | 0.62                 | 6.8E-02                                       | P25159                   | SWISSPROT                     | MATERNAL EFFECT PROTEIN STAUFEN  |
| 6749                   | 19905                 | 33298             | 0.62                 | 6.8E-02                                       | P25159                   | SWISSPROT                     | MATERNAL EFFECT PROTEIN STAUFEN  |
| 6837                   | 19905                 | 33298             | 0.68                 | 6.8E-02                                       | P25159                   | SWISSPROT                     | MATERNAL EFFECT PROTEIN STAUFEN  |
| 6837                   | 19905                 | 33298             | 0.68                 | 6.8E-02                                       | P25159                   | SWISSPROT                     | MATERNAL EFFECT PROTEIN STAUFEN  |
| 8133                   | 21215                 | 34736             | 1.51                 | 6.8E-02                                       | AF032572.1               | NT                            | Homo sapiens chemokine receptor CXCR4 gene, promoter region and complete cds   |
| 8669                   | 21749                 | 35287             | 0.77                 | 6.8E-02                                       | AF006055.1               | NT                            | Dicotyledon discoidium clathrin (clath) gene, complete cds   |
| 8979                   | 22058                 |                   | 0.53                 | 6.8E-02                                       | O60873                   | SWISSPROT                     | DNA POLYMERASE ZETA CATALYTIC SUBUNIT (HREV3)  |
| 9121                   | 22200                 | 35741             | 1.28                 | 6.8E-02                                       | 9629198                  | NT                            | Human respiratory syncytial virus, complete genome   |
| 9121                   | 22200                 | 35742             | 1.28                 | 6.8E-02                                       | 9629198                  | NT                            | Human respiratory syncytial virus, complete genome   |
| 10157                  | 23194                 | 36790             | 0.54                 | 6.8E-02                                       | AA58752.1                | EST_HUMAN                     | 997g06.x1 NCI CGAP Lu24 Homo sapiens cDNA clone IMAGE:2149488 3'   |
| 10282                  | 23327                 | 36830             | 1.5                  | 6.8E-02                                       | Y07948.1                 | NT                            | Homo sapiens EWS, gar22, np22 and bcr22 genes  |
| 10327                  | 23362                 |                   | 0.65                 | 6.8E-02                                       | 11430559                 | NT                            | Homo sapiens vinculin (VCL), mRNA  |
| 10710                  | 23743                 | 37349             | 0.48                 | 6.8E-02                                       | BF604659.1               | EST_HUMAN                     | 602080808F2 NIH_MGC_81 Homo sapiens cDNA clone IMAGE:4245336 5'  |
| 11205                  | 24274                 | 37811             | 4.86                 | 6.8E-02                                       | BF374248.1               | EST_HUMAN                     | MR1-SN084-010600-008-672 SN0084 Homo sapiens cDNA  |
| 12761                  | 25505                 |                   | 4.64                 | 6.8E-02                                       | 9937891                  | NT                            | Mus musculus DIPB gene (Dipb), mRNA  |
| 13124                  | 25733                 |                   | 1.28                 | 6.8E-02                                       | AF167490.1               | NT                            | Rattus norvegicus cytochrome P450 2E1 (CYP2E1) gene, 5' flanking region  |

Table 4  
Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 606                    | 13785                 | 26805             | 1.57                 | 6.5E-02                                       | BF027638.1               | EST_HUMAN                     | 601671046F1 NIH_MGC_20 Homo sapiens cDNA clone IMAGE:3954178.5   |
| 1011                   | 14183                 | 27245             | 1.3                  | 6.5E-02                                       | 7706088                  | NT                            | Homo sapiens E2F-like protein (LOC61270), mRNA   |
| 1422                   | 14576                 | 27649             | 3.38                 | 6.5E-02                                       | U47624.1                 | NT                            | Xenopus laevis alpha(E)-catenin mRNA, complete cds   |
| 1773                   | 14822                 | 28016             | 2.04                 | 6.5E-02                                       | AE000784.1               | NT                            | Aquifer acidus section 98 of 109 of the complete genome  |
| 5878                   | 18870                 | 32150             | 2.07                 | 6.5E-02                                       | AA443991.1               | EST_HUMAN                     | 244812.s1 Soares ovary tumor NihHOT Homo sapiens cDNA clone IMAGE:756743.3' similar to gb:M26038   |
| 6873                   | 19832                 | 33271             | 0.79                 | 6.5E-02                                       | BF663340.1               | EST_HUMAN                     | HLA CLASS II HISTOCOMPATIBILITY ANTIGEN, DR-5 BETA CHAIN (HUMAN);  |
| 7113                   | 18539                 | 31493             | 1.02                 | 6.5E-02                                       | U22681.1                 | NT                            | 602118887F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:4278029.5   |
| 10147                  | 23185                 | 36781             | 0.57                 | 6.5E-02                                       | BE963200.2               | EST_HUMAN                     | Asciobacter vinelandii ATCC 9046 negative regulator MucB (mucB) gene, partial cds  |
| 10147                  | 23185                 | 36782             | 0.57                 | 6.5E-02                                       | BE963200.2               | EST_HUMAN                     | 601666817R1 NIH_MGC_97 Homo sapiens cDNA clone IMAGE:3865637.3'  |
| 10883                  | 23717                 | 37323             | 0.81                 | 6.5E-02                                       | BF106300.1               | EST_HUMAN                     | 601656817R1 NIH_MGC_97 Homo sapiens cDNA clone IMAGE:3865637.3'  |
| 10875                  | 23960                 | 37589             | 4.45                 | 6.5E-02                                       | AA185648.1               | EST_HUMAN                     | 601823511F1 NIH_MGC_77 Homo sapiens cDNA clone IMAGE:4043138.5'  |
| 12163                  | 25128                 |                   | 3.78                 | 6.5E-02                                       | M21496.1                 | NT                            | z32g06.s1 Soares NIH-MP Pu_S1 Homo sapiens cDNA clone IMAGE:665144.3'  |
| 12633                  | 26363                 |                   | 3.67                 | 6.5E-02                                       | AF102963.1               | NT                            | Rabbit microsomal epoxide hydrolase  |
| 589                    | 13780                 | 26789             | 1.48                 | 6.4E-02                                       | X04549.1                 | NT                            | Nectria haematococca kinesin related protein 2 (KRP2) gene, complete cds   |
| 1770                   | 14918                 | 28013             | 0.99                 | 6.4E-02                                       | AE001777.1               | NT                            | A. carterae precursor of peridinin-chlorophylla-protein (PCP) gene   |
| 1770                   | 14919                 | 28014             | 0.99                 | 6.4E-02                                       | AE001777.1               | NT                            | Thermoboga maritima section 88 of 138 of the complete genome   |
|                        |                       |                   |                      |   |                          |                               | Thermoboga maritima section 89 of 138 of the complete genome   |
| 5568                   | 18783                 | 31803             | 1.11                 | 6.4E-02                                       | A191958.1                | EST_HUMAN                     | qe07601.x1 Soares testis_NHT Homo sapiens cDNA clone IMAGE:1738249.3' similar to contains LTR8.b3  |
| 6239                   | 19413                 | 32761             | 2.64                 | 6.4E-02                                       | AF052733.1               | NT                            | LTR8 repetitive element;   |
| 6239                   | 19413                 | 32762             | 2.64                 | 6.4E-02                                       | AF062733.1               | NT                            | Heterodera glycines beta-1,4-endoglucanase-1 precursor (HG-eng-1) gene, complete cds   |
| 6332                   | 19686                 | 33088             | 1.23                 | 6.4E-02                                       | A1672898.1               | EST_HUMAN                     | Heterodera glycines beta-1,4-endoglucanase-1 precursor (HG-eng-1) gene, complete cds   |
| 6957                   | 20270                 | 33708             | 4.11                 | 6.4E-02                                       | BE974448.1               | EST_HUMAN                     | w973g12.x1 Soares_Dieckgrasfe_colon_NHCO Homo sapiens cDNA clone IMAGE:2346790.3'  |
| 8631                   | 21812                 |                   | 2.47                 | 6.4E-02                                       | 6753323                  | NT                            | 601880425R2 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:3850503.3'  |
| 8865                   | 21944                 | 36478             | 4.17                 | 6.4E-02                                       | AA093305.1               | EST_HUMAN                     | Mus musculus cheperonin subunit 6a (zeta) (Cct6a), mRNA  |
| 9327                   | 22403                 | 35955             | 0.98                 | 6.4E-02                                       | AF150196.1               | EST_HUMAN                     | K1419.seq.F Human fetal heart, Lambda ZAP Express Homo sapiens cDNA 5'   |
| 9786                   | 22826                 |                   | 0.91                 | 6.4E-02                                       | BE934083.1               | EST_HUMAN                     | AF150196 Human mRNA from cd34+ stem cells Homo sapiens cDNA clone CBDAIA10   |
| 9918                   | 22858                 | 36545             | 1.97                 | 6.4E-02                                       | AB011126.1               | NT                            | RC1-OT083-150800-014-g06 OT083 Homo sapiens cDNA   |
| 10468                  | 23503                 | 37116             | 0.45                 | 6.4E-02                                       | AF087150.1               | NT                            | Homo sapiens mRNA for KIAA0554 protein, partial cds  |
| 10468                  | 23503                 | 37117             | 0.45                 | 6.4E-02                                       | AF087150.1               | NT                            | Homo sapiens DNA topoisomerase II beta (TOP2B) gene, exons 16, 17, and 18  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens DNA topoisomerase II beta (TOP2B) gene, exons 16, 17, and 18  |
| 12008                  | 24993                 | 38697             | 1.96                 | 6.4E-02                                       | U91328.1                 | NT                            | Human hereditary haemochromatosis region, histone 2A-like protein gene, hereditary haemochromatosis (HLA-H) gene, RoRat gene, and sodium phosphate transporter (NPT3) gene, complete cds |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO. | Exon<br>SEQ ID<br>NO. | ORF SEQ<br>ID NO. | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 12008                  | 24933                 | 38898             | 1.88                 | 6.4E-02                                       | U91328.1                 | NT                            | Human hereditary haemochromatosis region, histone 2A-like protein gene, hereditary haemochromatosis (HLA-H) gene, Rofet gene, and sodium phosphate transporter (NP73) gene, complete cds |
| 12427                  | 26048                 |                   | 2.7                  | 6.4E-02                                       | AF107890.1               | NT                            | Homo sapiens miichn 5B (MUC5B) gene, partial cds   |
| 12479                  | 25331                 | 32056             | 2.61                 | 6.4E-02                                       | AJ27174.1                | NT                            | Drosophila melanogaster mRNA for mod(mdg4)51.4 protein   |
| 1793                   | 14942                 | 28035             | 2.51                 | 6.3E-02                                       | AF106905.1               | NT                            | Mus musculus major histocompatibility locus class III regions Hsc70H gene, partial cds; smRNP, G7A, NG23, MUs homolog, CLCP, NQ24, NG25, and NG26 genes, complete cds; and unknown genes |
| 3892                   | 18854                 |                   | 2.29                 | 6.3E-02                                       | P37092                   | SWISSPROT                     | HEAT SHOCK PROTEIN 70 HOMOLOG  |
| 6284                   | 19438                 | 32785             | 1.12                 | 6.3E-02                                       | BF210736.1               | EST_HUMAN                     | 601873318F1 NIH_MGC_54 Homo sapiens cDNA clone IMAGE:4087488 5'  |
| 7391                   | 20489                 |                   | 1.84                 | 6.3E-02                                       | X97869.1                 | NT                            | H. sapiens gene encoding La autoantigen  |
| 9481                   | 22548                 | 36111             | 0.99                 | 6.3E-02                                       | AJ243916.1               | NT                            | Drosophila melanogaster Domin gene, exons 1-3  |
| 10218                  | 23264                 | 36843             | 3.52                 | 6.3E-02                                       | AB070182.1               | NT                            | Hepatitis G virus RNA for polyprotein (NS5A region), partial cds, strain: CMR-152  |
| 10478                  | 23513                 |                   | 1.31                 | 6.3E-02                                       | AV688070.1               | EST_HUMAN                     | AV688070 GKG Homo sapiens cDNA clone GKGAHE01 5'   |
| 10854                  | 19438                 | 32785             | 2.38                 | 6.3E-02                                       | BF210736.1               | EST_HUMAN                     | 601873318F1 NIH_MGC_54 Homo sapiens cDNA clone IMAGE:4087488 5'  |
| 2549                   | 15674                 | 28797             | 1.04                 | 6.2E-02                                       | AL161546.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 48  |
| 4365                   | 17508                 | 30489             | 4.22                 | 6.2E-02                                       | AL161572.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 68  |
| 4458                   | 17598                 |                   | 1.03                 | 6.2E-02                                       | AF271235.1               | NT                            | Rattus norvegicus differentiation-associated Na-dependent inorganic phosphate cotransporter (DNPI) mRNA, complete cds  |
| 4705                   | 17940                 |                   | 5.68                 | 6.2E-02                                       | Q62191                   | SWISSPROT                     | 52 KD RO PROTEIN (SJOEGREN SYNDROME TYPE A ANTIGEN (SS-A)) (RO52)  |
| 6835                   | 20250                 | 33685             | 0.78                 | 6.2E-02                                       | D49530.1                 | NT                            | Spirulina platensis DNA for adenylate cyclase, complete cds  |
| 7805                   | 20881                 | 34354             | 0.88                 | 6.2E-02                                       | U41453.1                 | NT                            | Rattus norvegicus PKC binding protein and substrate mRNA, complete cds   |
| 8018                   | 21087                 |                   | 0.68                 | 6.2E-02                                       | AL161545.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 45  |
| 8148                   | 28226                 |                   | 0.92                 | 6.2E-02                                       | M81101.1                 | NT                            | Porcine group C rotavirus (strain Cowden) outer membrane protein (VP7) mRNA, complete cds  |
| 9544                   | 22809                 | 36177             | 0.47                 | 6.2E-02                                       | AA778450.1               | EST_HUMAN                     | af20a06.s1 Soares_t01a18_9w Homo sapiens cDNA clone IMAGE:1032178 3'   |
| 9881                   | 22730                 | 36300             | 1.19                 | 6.2E-02                                       | 6677898                  | NT                            | Mus musculus striatal cell derived factor receptor 2 (Sdr2), mRNA  |
| 11415                  | 24476                 | 38140             | 1.42                 | 6.2E-02                                       | AF217490.1               | NT                            | Homo sapiens fragile 16D oxidoreductase (FOR) gene, exons 8, 9, and partial cds  |
| 11829                  | 24709                 | 38401             | 1.54                 | 6.2E-02                                       | AJ242735.1               | NT                            | Metarhizium anisopliae mRNA for Chymotrypsin (chyl) gene   |
| 12263                  | 26191                 |                   | 3.63                 | 6.2E-02                                       | AE000750.1               | NT                            | Aquifex aeolicus section 82 of 109 of the complete genome  |
| 12617                  | 25415                 |                   | 1.24                 | 6.2E-02                                       | BE703085.1               | EST_HUMAN                     | 601883773F1 NIH_MGC_7 Homo sapiens cDNA clone IMAGE:3837842 5'   |
| 12703                  | 25467                 | 32024             | 3.61                 | 6.2E-02                                       | BF112639.1               | EST_HUMAN                     | 737h08.x1 Soares_NSF_F8_9W_OT_PA_P1 Homo sapiens cDNA clone IMAGE:3523816 5' similar to  |
| 268                    | 13485                 | 26616             | 3.63                 | 6.1E-02                                       | D16471.1                 | NT                            | TR-00V1S6 Q9V4S8 HYPOTHETICAL 30.3 KD PROTEIN. [1]:  |
| 4089                   | 17284                 |                   | 2.85                 | 6.1E-02                                       | U73325.1                 | NT                            | Human mRNA, Xq terminal portion  |
|                        |                       |                   |                      |   |                          | NT                            | Arabidopsis thaliana K+ inward rectifying channel protein (AKC1) gene, complete cds  |

Page 141 of 550  
Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top)<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 6240                   | 19414                 |                   | 1.57                 | 6.1E-02                                   | 4507070                  | NT                            | Homo sapiens SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily a, member 3 (SMARCA3) mRNA                          |
| 8468                   | 21539                 | 35068             | 3.65                 | 6.1E-02                                   | X00268.1                 | NT                            | H. sapiens mRNA for B-HLH DNA binding protein  |
| 8861                   | 21840                 | 35474             | 0.6                  | 6.1E-02                                   | BE971853.1               | EST_HUMAN                     | 601651086R1 NIH_MGC_81 Homo sapiens cDNA clone IMAGE:3934604 3'  |
| 8861                   | 21940                 | 36475             | 0.6                  | 6.1E-02                                   | BE971853.1               | EST_HUMAN                     | 601651086R1 NIH_MGC_81 Homo sapiens cDNA clone IMAGE:3934604 3'  |
| 10867                  | 24048                 | 37681             | 3.9                  | 6.1E-02                                   | BE176543.1               | EST_HUMAN                     | IL3-H10618-110500-138-C08 H10618 Homo sapiens cDNA   |
| 12134                  | 25114                 | 38818             | 1.86                 | 6.1E-02                                   | AB025333.1               | NT                            | Epitratrus burgeri mRNA for RNA polymerase III largest subunit, partial cds  |
| 12218                  | 26053                 |                   | 30.03                | 6.1E-02                                   | X70988.1                 | NT                            | S. japonicum mRNA for serine-enzyme  |
| 12836                  | 25957                 |                   | 1.58                 | 6.1E-02                                   | A188691.1                | EST_HUMAN                     | tz56107.X1 NCI_CGAP_OV35 Homo sapiens cDNA clone IMAGE:2282801 3'  |
| 12863                  | 25845                 |                   | 6.43                 | 6.1E-02                                   | AL163207.2               | NT                            | Homo sapiens chromosome 21 segment HS21C007  |
| 1291                   | 14447                 | 27513             | 1.58                 | 6.0E-02                                   | AE001777.1               | NT                            | Thermotoga maritima section 89 of 139 of the complete genome   |
| 2740                   | 15857                 | 28069             | 1.17                 | 6.0E-02                                   | AW068848.1               | EST_HUMAN                     | EST380824 IMAGE resequences, MAGJ Homo sapiens cDNA  |
| 2832                   | 15946                 |                   | 1.43                 | 6.0E-02                                   | AB031289.1               | NT                            | Mesocricetus auratus mitochondrial DNA, NADH dehydrogenase subunit 4, tRNA-Gln, tRNA-Phe, tRNA-Met, ATPase subunit 6, and NADH dehydrogenase subunit 2 |
| 3002                   | 13335                 | 26362             | 1.53                 | 6.0E-02                                   | AA188730.1               | EST_HUMAN                     | zp78c04.r1 Stratagene HeLa cell c3 637216 Homo sapiens cDNA clone IMAGE:626310 5'  |
| 3002                   | 13335                 | 26363             | 1.53                 | 6.0E-02                                   | AA188730.1               | EST_HUMAN                     | zp78c04.r1 Stratagene HeLa cell c3 637216 Homo sapiens cDNA clone IMAGE:626310 5'  |
| 3301                   | 16476                 | 29468             | 2.07                 | 6.0E-02                                   | AA372376.1               | EST_HUMAN                     | EST84266 Colon adenocarcinoma IV Homo sapiens cDNA 5' and similar to tissue-specific protein   |
| 3301                   | 16476                 | 29467             | 2.07                 | 6.0E-02                                   | AA372376.1               | EST_HUMAN                     | EST84266 Colon adenocarcinoma IV Homo sapiens cDNA 5' and similar to tissue-specific protein   |
| 3725                   | 16886                 |                   | 0.76                 | 6.0E-02                                   | BE864443.2               | EST_HUMAN                     | 601658150R1 NIH_MGC_68 Homo sapiens cDNA clone IMAGE:3876060 3'  |
| 5514                   | 18712                 |                   | 1.01                 | 6.0E-02                                   | AW370211.1               | EST_HUMAN                     | RC9-BT0253-011189-013-504 BT0253 Homo sapiens cDNA   |
| 6345                   | 19515                 | 32872             | 1                    | 6.0E-02                                   | A1807537.1               | EST_HUMAN                     | wf48h05.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2358873 3' similar to contains L1.1 L1 repetitive element;                                |
| 7127                   | 18553                 | 31467             | 2.86                 | 6.0E-02                                   | 5174688                  | NT                            | Homo sapiens stimulated trans-acting factor (50 kDa) (STAF50) mRNA   |
| 7127                   | 18553                 | 31468             | 2.86                 | 6.0E-02                                   | 5174688                  | NT                            | Homo sapiens stimulated trans-acting factor (50 kDa) (STAF50) mRNA   |
| 7338                   | 20418                 | 33880             | 2.37                 | 6.0E-02                                   | BF382349.1               | EST_HUMAN                     | 601815274F2 NIH_MGC_66 Homo sapiens cDNA clone IMAGE:4049226 5'  |
| 7857                   | 20912                 | 34417             | 1.78                 | 6.0E-02                                   | A1204275.1               | EST_HUMAN                     | qf63b08.x1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:1754189 3'  |
| 8617                   | 21687                 |                   | 0.46                 | 6.0E-02                                   | 11468495                 | NT                            | Reclinomonas americana mitochondrion, complete genome  |
| 9472                   | 22529                 | 36092             | 1.29                 | 6.0E-02                                   | A1623167.1               | EST_HUMAN                     | ts78a06.x1 NCI_CGAP_GC03 Homo sapiens cDNA clone IMAGE:2237362 3'  |
| 9472                   | 22529                 | 36093             | 1.29                 | 6.0E-02                                   | A1623167.1               | EST_HUMAN                     | ts78a06.x1 NCI_CGAP_GC03 Homo sapiens cDNA clone IMAGE:2237362 3'  |
| 9806                   | 22661                 | 36233             | 2                    | 6.0E-02                                   | AJ245365.1               | NT                            | Acipenser baeri partial IGLV gene for immunoglobulin light chain variable region, exons 1-2  |
| 9806                   | 22661                 | 36234             | 2                    | 6.0E-02                                   | AJ245365.1               | NT                            | Acipenser baeri partial IGLV gene for immunoglobulin light chain variable region, exons 1-2  |
| 10109                  | 23147                 | 36746             | 0.72                 | 6.0E-02                                   | AA309787.1               | EST_HUMAN                     | EST180654 Jurkat T-cells V Homo sapiens cDNA 5' and similar to similar to heat shock protein 1, 60 kDa-like  |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 10109                  | 23147                 | 36747             | 0.72                 | 6.0E-02                                       | AA309797.1               | EST_HUMAN                     | EST180854: Jurkat T-cells V Homo sapiens cDNA 5' end similar to similar to heat shock protein 1, 60 kDa-like  |
| 11618                  | 24669                 |                   | 1.42                 | 6.0E-02                                       | AA128386.1               | EST_HUMAN                     | zn87c08.t1 Stragapene lung carcinoma 837218 Homo sapiens cDNA clone IMAGE:565166 5' similar to gb:X089181.60S RIBOSOMAL PROTEIN L31 (HUMAN);        |
| 12921                  | 25606                 |                   | 5.12                 | 6.0E-02                                       | A180273.1                | EST_HUMAN                     | wf89h03.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2360885 3' similar to TR:O60289  |
| 239                    | 13481                 | 28489             | 5.88                 | 5.9E-02                                       | AW834719.1               | EST_HUMAN                     | O60298 KIAA0551 PROTEIN:  |
| 3048                   | 16224                 | 29246             | 2.77                 | 5.9E-02                                       | AF180289.1               | NT                            | RC1-DT0001-230100-012-e10 DT0001 Homo sapiens cDNA  |
| 4864                   | 17897                 |                   | 0.77                 | 5.9E-02                                       | AF16811.1                | NT                            | Mus musculus p53 tumor suppressor gene, exon 10 and 11, partial cds; alternatively spliced  |
| 8817                   | 21898                 | 35435             | 2                    | 5.9E-02                                       |                          | NT                            | Duck parvovirus strain 80-2183 capsid protein (VP3) gene, partial cds   |
| 9650                   | 21093                 |                   | 0.97                 | 5.9E-02                                       | 8055249                  | EST_HUMAN                     | Mus musculus trophoblast related homeobox 5 (Drosophila) (hox), mRNA  |
| 11026                  | 24104                 |                   | 7.39                 | 5.9E-02                                       | BF242748.1               | EST_HUMAN                     | 601877608F1 NIH_MGC_65 Homo sapiens cDNA clone IMAGE:4105894 5'   |
| 11855                  | 24824                 |                   | 1.35                 | 5.9E-02                                       | BF572539.1               | EST_HUMAN                     | Mus musculus foliellath-like (Fell), mRNA   |
| 11850                  | 24839                 |                   | 1.57                 | 5.9E-02                                       | AJ240733.1               | EST_HUMAN                     | 602076548F1 NIH_MGC_62 Homo sapiens cDNA clone IMAGE:4243834 5'   |
| 966                    | 14129                 |                   | 6                    | 5.8E-02                                       | D90110.1                 | NT                            | Gallus gallus HKC9 telomere junction  |
| 1693                   | 14845                 | 27929             | 0.97                 | 5.8E-02                                       | O61768                   | SWISSPROT                     | Thiobacillus ferrooxidans mcrC, mcrA genes and URF-1  |
| 3763                   | 16914                 | 29817             | 1.68                 | 5.8E-02                                       | AE001776.1               | NT                            | KINESIN HEAVY CHAIN (UBIQUITOUS KINESIN HEAVY CHAIN) (UKHC)   |
| 4474                   | 17614                 | 30593             | 6.79                 | 5.8E-02                                       | AW051927.1               | EST_HUMAN                     | Thermotoga maritima section 87 of 138 of the complete genome  |
| 4474                   | 17614                 | 30594             | 6.79                 | 5.8E-02                                       | AW051927.1               | EST_HUMAN                     | wz24c02.x1 NCI_CGAP_Kid11 Homo sapiens cDNA clone IMAGE:2544578 3'  |
| 4669                   | 17804                 | 30792             | 4.64                 | 5.8E-02                                       | A1247505.1               | EST_HUMAN                     | wz24c02.x1 NCI_CGAP_Kid11 Homo sapiens cDNA clone IMAGE:2544578 3'  |
| 4669                   | 17804                 | 30793             | 4.64                 | 5.8E-02                                       | A1247505.1               | EST_HUMAN                     | qh5601.x1 Soares_fetal_liver_spleen_INFLS_S1 Homo sapiens cDNA clone IMAGE:1846897 3' similar to gb:M13142 COAGULATION FACTOR XI PRECURSOR (HUMAN); |
| 4698                   | 17831                 |                   | 2.1                  | 5.8E-02                                       | AF098284.1               | NT                            | qh5601.x1 Soares_fetal_liver_spleen_INFLS_S1 Homo sapiens cDNA clone IMAGE:1846897 3' similar to gb:M13142 COAGULATION FACTOR XI PRECURSOR (HUMAN); |
| 7856                   | 20910                 | 34414             | 2.76                 | 5.8E-02                                       | M89150.1                 | NT                            | (Gallus gallus tyrosine kinase JAK1 (JAK1) mRNA, complete cds   |
| 7856                   | 20910                 | 34415             | 2.76                 | 5.8E-02                                       | M89150.1                 | NT                            | Human polymorphic microsatellite DNA  |
| 8868                   | 21945                 | 35479             | 0.61                 | 5.8E-02                                       | AL163283.2               | NT                            | Human polymorphic microsatellite DNA  |
| 12965                  | 26261                 |                   | 1.65                 | 5.8E-02                                       | AF220177.1               | NT                            | Human sapiens chromosome 21 segment HS21C083  |
| 12681                  | 26180                 |                   | 4.55                 | 5.8E-02                                       | AA604269.1               | EST_HUMAN                     | Drosophila melanogaster male fruitless type-A (fru) mRNA, complete cds  |
| 3123                   | 16289                 | 29312             | 1.14                 | 5.7E-02                                       | A1081844.1               | EST_HUMAN                     | no76e11.x1 NCI_CGAP_AA1 Homo sapiens cDNA clone IMAGE:1112684 3'  |
| 3139                   | 16316                 | 29328             | 1.09                 | 5.7E-02                                       | AF119117.1               | NT                            | oa63105.x1 NCI_CGAP_Br2 Homo sapiens cDNA clone IMAGE:1032465 3' similar to WP:C37A2.2  |
| 3902                   | 17061                 | 30060             | 2.3                  | 5.7E-02                                       | AW686791.1               | EST_HUMAN                     | CE088111  |
| 4807                   | 17941                 |                   | 0.95                 | 5.7E-02                                       | M85098.1                 | NT                            | Homo sapiens dopamine transporter (SLC3A3) gene, complete cds   |
|                        |                       |                   |                      |   |                          |                               | EST1378868: IMAGE resequences, MAGI Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | Bos taurus lysozyme gene (cow 3), complete cds  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 6000                   | 19185                 |                   | 0.87                 | 5.7E-02                                       | AF275948.1               | NT                            | Homo sapiens ABCA1 (ABCA1) gene, complete cds  |
| 7630                   | 20659                 | 34175             | 0.88                 | 5.7E-02                                       | BE871911.1               | EST_HUMAN                     | 601447937F1 NIH_MGC_65 Homo sapiens cDNA clone IMAGE:3851885 5'  |
| 7630                   | 20659                 | 34176             | 0.88                 | 5.7E-02                                       | BE871911.1               | EST_HUMAN                     | 601447937F1 NIH_MGC_65 Homo sapiens cDNA clone IMAGE:3851885 5'  |
| 7710                   | 20775                 | 34260             | 0.72                 | 5.7E-02                                       | D78003.1                 | NT                            | Xenopus laevis mRNA for fourth component of complement, complete cds   |
| 7710                   | 20775                 | 34261             | 0.72                 | 5.7E-02                                       | D78003.1                 | NT                            | Xenopus laevis mRNA for fourth component of complement, complete cds   |
| 8349                   | 21430                 | 34954             | 1.45                 | 5.7E-02                                       | AJ296090.1               | NT                            | Rattus norvegicus mRNA for potassium channel, alpha subunit (Kv9.2 gene)   |
| 10056                  | 23083                 | 36695             | 0.82                 | 5.7E-02                                       | 6681280                  | NT                            | Mus musculus ec2 oncogene (Ec2), mRNA  |
| 11484                  | 24523                 | 38193             | 3.14                 | 5.7E-02                                       | A1752885.1               | EST_HUMAN                     | cm18b09.y1 Normal Human Trabecular Bone Cells Homo sapiens cDNA clone NHTBC_cm18b09 random   |
| 11484                  | 24523                 | 38194             | 3.14                 | 5.7E-02                                       | A1752885.1               | EST_HUMAN                     | cm18b09.y1 Normal Human Trabecular Bone Cells Homo sapiens cDNA clone NHTBC_cm18b09 random   |
| 12588                  | 24710                 |                   | 1.86                 | 5.7E-02                                       | AL163303.2               | NT                            | Homo sapiens chromosome 21 segment HS21C103  |
| 12769                  | 25512                 |                   | 19.03                | 5.7E-02                                       | D50320.1                 | NT                            | Pig DNA for SPAL-2, complete cds   |
| 12853                  | 26042                 |                   | 2.17                 | 5.7E-02                                       | AJ271735.1               | NT                            | Homo sapiens Xq pseudautosomal region, segment 1/2   |
| 13012                  | 26165                 |                   | 3.04                 | 5.7E-02                                       | AF217480.1               | NT                            | Homo sapiens fragile 18D oxidoreductase (FOR) gene, exons 8, 9, and partial cds  |
| 13171                  | 25769                 | 31929             | 5.21                 | 5.7E-02                                       | AF261280.1               | NT                            | Pan troglodytes apolipoprotein E gene, complete cds  |
| 1558                   | 14709                 | 27789             | 1.18                 | 5.7E-02                                       | R48513.1                 | EST_HUMAN                     | y184d10.s1 Soares breast 2NtHBst Homo sapiens cDNA clone IMAGE:163523 3' similar to contains L1 repetitive element;                                  |
| 2362                   | 15493                 |                   | 1.1                  | 5.6E-02                                       | AF094455.1               | NT                            | Hydroxylase rotundifolia ribosomal protein L16 (rp16) gene, intron; chloroplast gene for chloroplast product   |
| 4783                   | 17898                 | 30878             | 1.95                 | 5.6E-02                                       | BE904308.1               | EST_HUMAN                     | 601494578F2 NIH_MGC_70 Homo sapiens cDNA clone IMAGE:3896610 5'  |
| 4818                   | 17951                 | 30938             |                      | 5.6E-02                                       | AB013100.1               | NT                            | Lycopodium esculentum LE-ACS6 mRNA for 1-aminocyclopropane-1-carboxylate synthase, complete cds  |
| 6789                   | 19854                 | 33354             | 1.37                 | 5.6E-02                                       | AA290599.1               | EST_HUMAN                     | zs46c001.s1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:700416 3'  |
| 7031                   | 20187                 | 33589             | 1.31                 | 5.6E-02                                       | AA290599.1               | EST_HUMAN                     | x02c10.x1 NCI_CGAP_UK2 Homo sapiens cDNA clone IMAGE:2696050 3' similar to TR:O84878 O94878 KIAA0905 PROTEIN;  |
| 7301                   | 20383                 | 33642             | 5.87                 | 5.6E-02                                       | AW172708.1               | EST_HUMAN                     | cd47712.s1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:1371119 3' similar to contains AU repetitive element; contains element L1 repetitive element; |
| 8010                   | 21060                 | 34572             | 1.02                 | 5.6E-02                                       | AA868182.1               | EST_HUMAN                     | QVO-BN0147-280400-214-g07 BN0147 Homo sapiens cDNA   |
| 8002                   | 22081                 | 35623             | 3.3                  | 5.6E-02                                       | BE008001.1               | EST_HUMAN                     | q664g11.x1 Soares testis_NHT Homo sapiens cDNA clone IMAGE:1734308 3'  |
| 9002                   | 22081                 | 35624             | 1.32                 | 5.6E-02                                       | A1183583.1               | EST_HUMAN                     | 601087158F1 NIH_MGC_10 Homo sapiens cDNA clone IMAGE:3453279 5'  |
| 10017                  | 23055                 | 36651             | 2.52                 | 5.6E-02                                       | BE542683.1               | EST_HUMAN                     | 601087158F1 NIH_MGC_10 Homo sapiens cDNA clone IMAGE:3453279 5'  |
|                        |                       |                   | 2.52                 | 5.6E-02                                       | BE542683.1               | EST_HUMAN                     | nt48d07.s1 NCI_CGAP_AVI Homo sapiens cDNA clone IMAGE:923245 similar to TR:G768859 G768859 LAMINA ASSOCIATED POLYPEPTIDE 1C.;                        |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 11893                  | 24851                 |                   | 2.42                 | 6.6E-02                                       | AF260225.1               | NT                            | Homo sapiens TESTIN 2 and TESTIN 3 genes, complete cds, alternatively spliced  |
| 2720                   | 15838                 | 28948             | 7.33                 | 6.6E-02                                       | X97839.1                 | NT                            | H. sapiens gene encoding La autoantigen  |
| 3286                   | 10460                 | 29481             | 3.33                 | 5.9E-02                                       | 6755501                  | NT                            | Mus musculus SH3 domain protein 1B (Sh3d1B), mRNA  |
| 4332                   | 17475                 | 30459             | 0.98                 | 5.9E-02                                       | L41561.1                 | NT                            | Caalid herpesvirus mRNA fragment   |
| 5776                   | 18968                 | 32272             | 3.49                 | 5.9E-02                                       | Q01174                   | SWISSPROT                     | TROPOMYOSIN ALPHA CHAIN, NON MUSCLE  |
| 6149                   | 18968                 | 32272             | 4.32                 | 6.6E-02                                       | Q01174                   | SWISSPROT                     | TROPOMYOSIN ALPHA CHAIN, NON MUSCLE  |
| 7535                   | 20608                 | 34083             | 1.65                 | 5.9E-02                                       | 6755902                  | NT                            | Mus musculus tufalin 1 (Tuf1), mRNA  |
| 8311                   | 21393                 | 34917             | 0.87                 | 5.9E-02                                       | AF170911.1               | NT                            | Homo sapiens sodium-dependent vitamin C transporter 1 (SVCT1) mRNA, complete cds   |
| 8311                   | 21393                 | 34918             | 0.87                 | 5.9E-02                                       | AF170911.1               | NT                            | Homo sapiens eIF4E-transporter (4E-T), mRNA  |
| 9855                   | 22895                 | 36478             | 0.78                 | 5.9E-02                                       | 10947034                 | NT                            | Homo sapiens eIF4E-transporter (4E-T), mRNA  |
| 9855                   | 22895                 | 36477             | 0.78                 | 5.9E-02                                       | 10947034                 | NT                            | Homo sapiens eIF4E-transporter (4E-T), mRNA  |
| 9851                   | 22890                 | 36583             | 1.24                 | 6.6E-02                                       | U68492.1                 | NT                            | Mus musculus second L11 receptor alpha chain (L11Ra2) gene, exons 1 and 2  |
| 11271                  | 24339                 | 37977             | 6.31                 | 5.9E-02                                       | U09771.1                 | NT                            | Citrobacter freundii DSM 30040 cyclopropane fatty acid synthase (cfa) gene, partial cds, dihydroxyacetone kinase (dhaK), glycerol dehydrogenase (dhaD), transcriptional activator (dhaR), 1,3-propanediol dehydrogenase (dhaT), glycerol dehydratase (dhaB), > |
| 3084                   | 18280                 |                   | 0.85                 | 5.4E-02                                       | AJ277468.1               | NT                            | Oryza sativa ribb3-1 gene for putative Bowman Birk trypsin inhibitor   |
| 3509                   | 18478                 |                   | 8.19                 | 5.4E-02                                       | BE073468.1               | EST_HUMAN                     | RCS-BT0559-140200-012-C03 BT0559 Homo sapiens cDNA   |
| 4020                   | 17177                 | 30186             | 0.61                 | 5.4E-02                                       | U85806.1                 | NT                            | Hirudo medicinalis SNAP-25 homolog mRNA, complete cds  |
| 8316                   | 21398                 |                   | 1.18                 | 5.4E-02                                       | Z89118.1                 | NT                            | Bacillus subtilis complete genome (section 13 of 21); from Z395261 to Z813730  |
| 9271                   | 22347                 | 35807             | 0.51                 | 5.4E-02                                       | AF260225.1               | NT                            | Homo sapiens TESTIN 2 and TESTIN 3 genes, complete cds, alternatively spliced  |
| 10938                  | 24020                 | 37853             | 1.86                 | 5.4E-02                                       | U20790.1                 | NT                            | Neurospora crassa ubiquitin-cytochrome c oxidoreductase subunit VIII (QCR8) mRNA, complete cds   |
| 11453                  | 24513                 | 38180             | 1.36                 | 5.4E-02                                       | BF371289.1               | EST_HUMAN                     | RC8-FN0112-160700-021-D08 FN0112 Homo sapiens cDNA   |
| 11453                  | 24513                 | 38181             | 1.36                 | 5.4E-02                                       | BF371289.1               | EST_HUMAN                     | RC8-FN0112-160700-021-D06 FN0112 Homo sapiens cDNA   |
| 12463                  | 26880                 |                   | 3.72                 | 5.4E-02                                       | U44894.1                 | NT                            | Rana catesbeiana heat shock protein 30 (HSP30) mRNA, complete cds  |
| 1078                   | 14244                 | 27300             | 1.55                 | 5.3E-02                                       | AW391248.1               | EST_HUMAN                     | QV6-ST0213-021289-062-a09 ST0213 Homo sapiens cDNA   |
| 1078                   | 14244                 | 27301             | 1.55                 | 5.3E-02                                       | AW391248.1               | EST_HUMAN                     | QV6-ST0213-021289-062-a09 ST0213 Homo sapiens cDNA   |
| 1635                   | 14688                 | 27768             | 20.67                | 6.3E-02                                       | T64769.1                 | EST_HUMAN                     | ye3712.J1 Stragene lung (#837210) Homo sapiens cDNA clone IMAGE:118951 5' similar to gb:K01503   |
| 2566                   | 15991                 | 28910             | 3.22                 | 5.3E-02                                       | AJ276408.1               | NT                            | H-LA CLASS II HISTOCOMPATIBILITY ANTIGEN, DP(1) ALPHA CHAIN (HUMAN);   |
| 3008                   | 16184                 | 29207             | 0.97                 | 5.3E-02                                       | M58417.1                 | NT                            | Pseudomonas putida tpsS gene   |
| 3008                   | 16184                 | 29208             | 0.97                 | 5.3E-02                                       | M58417.1                 | NT                            | Drosophila melanogaster lamhin B2 gene, complete cds   |
| 3221                   | 16395                 | 29406             | 4.83                 | 6.3E-02                                       | AJ276408.1               | NT                            | Drosophila melanogaster lamhin B2 gene, complete cds   |
| 5200                   | 18321                 | 31290             | 7.98                 | 5.3E-02                                       | M80463.1                 | NT                            | Mus musculus caudal type homeobox-1 (Cdx-1) gene, complete cds   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 5434                   | 18634                 | 31612             | 2.39                 | 5.3E-02                                       | AE000527.1               | NT                            | Helicobacter pylori 26895 section 5 of 134 of the complete genome                                     |
| 5434                   | 18634                 | 31613             | 2.39                 | 5.3E-02                                       | AE000527.1               | NT                            | Helicobacter pylori 26895 section 5 of 134 of the complete genome                                     |
| 6228                   | 19403                 | 32763             | 1.14                 | 5.3E-02                                       | M85289.1                 | NT                            | Human heparan sulfate proteoglycan (HSPG2) mRNA, complete cds   |
| 7024                   | 20180                 | 33580             | 4.02                 | 5.3E-02                                       | 9885413                  | NT                            | Lymphocystis disease virus 1, complete genome   |
| 7241                   | 20325                 | 33769             | 1.37                 | 5.3E-02                                       | U52832.1                 | NT                            | Haemophilus influenzae Rd section 147 of 163 of the complete genome                                   |
| 7517                   | 20690                 |                   | 2.3                  | 5.3E-02                                       | S78221.1                 | NT                            | nuclear protein TIF1 isoform [mice, mRNA, 4083 nt]  |
| 8081                   | 21073                 | 34585             | 0.88                 | 5.3E-02                                       | P38742                   | SWISSPROT                     | HYPOHETICAL 130.0 KD PROTEIN IN SNR8-SPO11 INTERGENIC REGION  |
| 8600                   | 21681                 |                   | 0.88                 | 5.3E-02                                       | U100098.1                | NT                            | Mus musculus 128/Sv cystatin C (cst8) gene, complete cds  |
| 8325                   | 22401                 | 35954             | 1.73                 | 6.3E-02                                       | X03127.1                 | NT                            | Podospora anserina mitochondrial psalman-sea DNA  |
| 10482                  | 23497                 |                   | 0.61                 | 5.3E-02                                       | Y07807.1                 | NT                            | D. rerio mRNA for zp-23 POU gene, splice variant (neurula, 9-16 hpf and postembryogenesis, 20-28 hpf) |
| 10538                  | 23573                 | 37180             | 0.79                 | 6.3E-02                                       | X68432.1                 | NT                            | B. rerio pou3f mRNA for transcription factor  |
| 13173                  | 25761                 | 31831             | 1.55                 | 5.3E-02                                       | AF276815.1               | NT                            | Branchiostoma floridae homeodomain-containing protein Hox13 (Hox13) gene, exon 2 and partial cds      |
| 2358                   | 15488                 |                   | 84.04                | 5.2E-02                                       | 5031908                  | NT                            | Homo sapiens mapin A, alpha (PABA peptide hydrolase) (MEPIA) mRNA                                     |
| 3183                   | 16358                 | 28363             | 2.39                 | 5.2E-02                                       | AJ277681.1               | NT                            | Homo sapiens partial LMO1 gene for LIM domain only 1 protein, exon 1                                  |
| 3183                   | 16358                 | 28384             | 2.39                 | 6.2E-02                                       | AJ277681.1               | NT                            | Homo sapiens partial LMO1 gene for LIM domain only 1 protein, exon 1                                  |
| 4050                   | 17206                 | 30216             | 0.8                  | 5.2E-02                                       | AF238101.1               | NT                            | Arabidopsis thaliana putative dicarboxylate diiron protein (Crt1) mRNA, complete cds                  |
| 4393                   | 17536                 | 30515             | 3.31                 | 5.2E-02                                       | U07132.1                 | NT                            | Human steroid hormone receptor Nrr-1 mRNA, complete cds   |
| 5287                   | 18406                 | 31373             | 0.66                 | 5.2E-02                                       | AB035201.1               | NT                            | Rattus norvegicus mRNA for thyroglobulin, complete cds  |
| 6040                   | 19223                 | 32545             | 0.64                 | 5.2E-02                                       | U14731.1                 | NT                            | Saccharomyces cerevisiae Cdc54p (CDC54) gene, complete cds  |
| 6233                   | 19408                 |                   | 0.84                 | 5.2E-02                                       | AB090985.1               | EST_HUMAN                     | wj80e04.x1 NCL CGAP_Lym12 Homo sapiens cDNA clone IMAGE:2409150 3' similar to cortals MER15.b71       |
| 7424                   | 20601                 | 33872             | 1.23                 | 5.2E-02                                       | P36322                   | SWISSPROT                     | DNA POLYMERASE PROCESSIVITY FACTOR (POLYMERASE ACCESSORY PROTEIN) (PAP) (DNA-BINDING GENE 18 PROTEIN) |
| 8388                   | 21470                 |                   | 2.39                 | 5.2E-02                                       | AL183204.2               | NT                            | Homo sapiens chromosome 21 segment HS21C004   |
| 8631                   | 22971                 | 36580             | 2.16                 | 5.2E-02                                       | D10927.1                 | NT                            | Turnip mosaic virus genomic RNA for Capsid protein, complete cds                                      |
| 8631                   | 22971                 | 36561             | 2.16                 | 6.2E-02                                       | D10927.1                 | NT                            | Turnip mosaic virus genomic RNA for Capsid protein, complete cds                                      |
| 12725                  | 25483                 |                   | 1.6                  | 5.2E-02                                       | Q03030                   | SWISSPROT                     | OXALACETATE DECARBOXYLASE ALPHA CHAIN   |
| 2437                   | 15565                 |                   | 0.88                 | 5.1E-02                                       | AL134071.1               | EST_HUMAN                     | DKFZp447D0073_1 647 (synonym: htr1) Homo sapiens cDNA clone DKFZp447D0073 5'                          |
| 5181                   | 18283                 | 31248             | 0.89                 | 5.1E-02                                       | BE957423.2               | EST_HUMAN                     | 601653555R2 NIH_MGC_55 Homo sapiens cDNA clone IMAGE:3838361 3'                                       |
| 6281                   | 18372                 |                   | 0.86                 | 5.1E-02                                       | AL138077.2               | NT                            | Campylobacter jejuni NCTC11168 complete genome, segment 4/6   |
| 5349                   | 18462                 |                   | 0.74                 | 5.1E-02                                       | U72397.1                 | NT                            | Bacteriophage 80 alpha holin and amidase genes, complete cds  |
| 6812                   | 18986                 | 33370             | 0.78                 | 5.1E-02                                       | AF280368.1               | NT                            | HIV-1 patient 98 from Italy protease (pol) gene, complete cds   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 6897                   | 18518                 | 31608             | 1.73                 | 5.1E-02                                       | BF37825.1                | EST_HUMAN                     | QVD-UM0051-250800-350-608 UM0051 Homo sapiens cDNA                                      |
| 8447                   | 21528                 | 35055             | 0.82                 | 6.1E-02                                       | M28434.1                 | NT                            | Human hypoxanthine phosphoribosyltransferase (HPRT) gene, complete cds                  |
| 8447                   | 21528                 | 35056             | 0.82                 | 5.1E-02                                       | M28434.1                 | NT                            | Human hypoxanthine phosphoribosyltransferase (HPRT) gene, complete cds                  |
| 8542                   | 21823                 | 35160             | 1.42                 | 5.1E-02                                       | AJ131866.1               | NT                            | Spodoptera littoralis mRNA for 3-dehydroxycholesterol 3beta-reductase                   |
| 8086                   | 22165                 | 35710             | 0.63                 | 5.1E-02                                       | P02533                   | SWISSPROT                     | KERATIN, TYPE I CYTOSKELETAL 14 (CYTOKERATIN 14) (K14) (CK 14)                          |
| 9086                   | 22165                 | 35711             | 0.63                 | 5.1E-02                                       | P02533                   | SWISSPROT                     | KERATIN, TYPE I CYTOSKELETAL 14 (CYTOKERATIN 14) (K14) (CK 14)                          |
| 10014                  | 23052                 | 36846             | 4.27                 | 5.1E-02                                       | AF031288.1               | NT                            | Candida albicans protein phosphatase Ssd1 homolog (SSD1) gene, complete cds             |
| 10384                  | 23418                 | 37028             | 1.9                  | 5.1E-02                                       | P40603                   | SWISSPROT                     | ANTER-SPECIFIC PROLINE-RICH PROTEIN APG (PROTEIN CEX)                                   |
| 11068                  | 24143                 | 37778             | 1.81                 | 5.1E-02                                       | AF083930.1               | NT                            | Homo sapiens ES18 mRNA, partial cds   |
| 11068                  | 24143                 | 37778             | 1.81                 | 5.1E-02                                       | AF083930.1               | NT                            | Homo sapiens ES18 mRNA, partial cds   |
| 12730                  | 25487                 | 20721             | 1.81                 | 5.1E-02                                       | AF082467.1               | NT                            | Curcuma inalo polygalacturonase precursor (MPC3) mRNA, complete cds                     |
| 495                    | 13690                 | 20721             | 2.8                  | 5.0E-02                                       | AF086004.1               | NT                            | Mus musculus fatty acid amide hydrolase gene, exon 10                                   |
| 1231                   | 14390                 | 27452             | 2.82                 | 5.0E-02                                       | Z89104.1                 | NT                            | Bacillus subtilis complete genome (section 1 of 21): from 1 to 213080                   |
| 2047                   | 16188                 | 28299             | 5.08                 | 5.0E-02                                       | P02810                   | SWISSPROT                     | 4) (PIF-FPIF-S) (PROTEIN APROTEIN C) [CONTAINS: PEPTIDE P-C]                            |
| 2879                   | 14182                 | 27244             | 10.68                | 5.0E-02                                       | U72742.1                 | NT                            | Oryctolagus cuniculus UDP-glucuronosyltransferase (UGT2B13) mRNA, complete cds          |
| 3418                   | 16567                 |                   | 1.38                 | 5.0E-02                                       | 7305610                  | NT                            | Mus musculus Unc-51 like kinase 2 (C. elegans) (Ulk2), mRNA                             |
| 3684                   | 16947                 |                   | 1.01                 | 5.0E-02                                       | U82782.1                 | NT                            | Haemophilus influenzae Rd section 97 of 163 of the complete genome                      |
| 3775                   | 16936                 | 28942             | 5.9                  | 5.0E-02                                       | U12769.2                 | NT                            | Arthraea permyi period clock protein homolog mRNA, complete cds                         |
| 4941                   | 18071                 |                   | 1.05                 | 5.0E-02                                       | P40732                   | SWISSPROT                     | CASEIN KINASE II BETA CHAIN (CK II)   |
| 6258                   | 19432                 | 32779             | 0.84                 | 5.0E-02                                       | AF086284.1               | NT                            | Gallus gallus tyrosine kinase JAK1 (JAK1) mRNA, complete cds                            |
| 8438                   | 19605                 |                   | 1.28                 | 5.0E-02                                       | AJ242825.1               | NT                            | Mus musculus Dmp-1 gene, exons 1-6  |
| 7128                   | 18554                 | 31469             | 0.93                 | 5.0E-02                                       | P35616                   | SWISSPROT                     | NEUROFILAMENT TRIPLET L PROTEIN (NEUROFILAMENT LIGHT POLYPEPTIDE) (NF-L)                |
| 7708                   | 20774                 | 34259             | 10.04                | 5.0E-02                                       | P35616                   | SWISSPROT                     | NEUROFILAMENT TRIPLET L PROTEIN (NEUROFILAMENT LIGHT POLYPEPTIDE) (NF-L)                |
| 7913                   | 20864                 |                   | 0.87                 | 5.0E-02                                       | AW082484.1               | EST_HUMAN                     | MRO-CT0084-100889-002-g10 CT0084 Homo sapiens cDNA                                      |
| 10403                  | 23438                 | 37045             | 1.37                 | 5.0E-02                                       | AF305238.1               | NT                            | Mus musculus Fos-interacting serine/threonine kinase 3 (Fis3) mRNA, complete cds        |
| 10956                  | 23988                 |                   | 0.95                 | 5.0E-02                                       | BF213280.1               | EST_HUMAN                     | 601844753F1 NIH_MGC 56 Homo sapiens cDNA clone IMAGE:4070101 5'                         |
| 11782                  | 24772                 | 36468             | 2.26                 | 5.0E-02                                       | U87600.1                 | NT                            | Methanococcus jannaschii section 142 of 160 of the complete genome                      |
| 12228                  | 26004                 |                   | 4.7                  | 5.0E-02                                       | Q04047                   | SWISSPROT                     | NO-ON-TRANSIENT A PROTEIN   |
| 231                    | 19452                 |                   | 11.82                | 4.9E-02                                       | M14230.1                 | NT                            | Chicken 28-kDa vitamin D-dependent calcium-binding protein (CaBP-28) mRNA, complete cds |
| 380                    | 13588                 | 26623             | 4.18                 | 4.9E-02                                       | AF275948.1               | NT                            | Homo sapiens ABCA1 (ABCA1) gene, complete cds   |
| 380                    | 13588                 | 26624             | 4.18                 | 4.9E-02                                       | AF275948.1               | NT                            | Homo sapiens ABCA1 (ABCA1) gene, complete cds   |
| 2837                   | 15114                 | 29126             | 0.71                 | 4.9E-02                                       | U32036.1                 | NT                            | Zea mays phytyl synthase (Y1) gene, complete cds  |
| 3360                   | 16532                 | 29548             | 1.85                 | 4.9E-02                                       | P54258                   | SWISSPROT                     | ATROPHIN-1 (DENTATORUBRAL-PALLIDOLYSIAN ATROPHY PROTEIN)                                |

Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 3680                   | 18823                 |                   | 0.85                 | 4.9E-02                                       | AA188940.1               | EST_HUMAN                     | z48a12.s1 Stragene hNT neuron (#837233) Homo sapiens cDNA clone IMAGE:832928 3' similar to contains Alu repetitive element/contains element MSR1 repetitive element; |
| 3681                   | 18844                 | 28851             | 0.78                 | 4.9E-02                                       | AA400914.1               | EST_HUMAN                     | z78a03.s1 Soares testis_NHT Homo sapiens cDNA clone IMAGE:728428 3'  |
| 3681                   | 18844                 | 28852             | 0.78                 | 4.9E-02                                       | AA400914.1               | EST_HUMAN                     | z78a03.s1 Soares testis_NHT Homo sapiens cDNA clone IMAGE:728428 3'  |
| 4864                   | 18093                 | 31086             | 2.84                 | 4.9E-02                                       | AW167821.1               | EST_HUMAN                     | xg66g10.x1 NCI CGAP UM4 Homo sapiens cDNA clone IMAGE:2632386 3'   |
| 4864                   | 18093                 | 31070             | 2.84                 | 4.9E-02                                       | AW167821.1               | EST_HUMAN                     | xg66g10.x1 NCI CGAP UM4 Homo sapiens cDNA clone IMAGE:2632386 3'   |
| 8488                   | 18885                 | 31702             | 1.92                 | 4.9E-02                                       | L00122.1                 | NT                            | Rat elastase II gene, exon 6   |
| 8488                   | 18885                 | 31703             | 1.92                 | 4.9E-02                                       | L00122.1                 | NT                            | Rat elastase II gene, exon 6   |
| 7282                   | 20374                 | 33831             | 1.79                 | 4.9E-02                                       | AE000980.1               | NT                            | Archaeoglobus fulgidus section 127 of 172 of the complete genome   |
| 8815                   | 21894                 |                   | 1.07                 | 4.9E-02                                       | AE002308.1               | NT                            | Chlamydia muridarum, section 40 of 85 of the complete genome   |
| 8842                   | 22021                 |                   | 0.81                 | 4.9E-02                                       | BE831532.1               | EST_HUMAN                     | MIR0-HT0408-170800-003-a08 HT0408 Homo sapiens cDNA  |
| 8954                   | 22033                 | 36576             | 0.97                 | 4.9E-02                                       | AL161558.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 59  |
| 10500                  | 23535                 | 37145             | 0.84                 | 4.9E-02                                       | P19532                   | SWISSPROT                     | TRANSCRIPTION FACTOR E3  |
| 10802                  | 23835                 | 37459             | 1.57                 | 4.9E-02                                       | L41161.1                 | NT                            | Mus musculus SM22 alpha gene, exon 1   |
| 10802                  | 23835                 | 37460             | 1.57                 | 4.9E-02                                       | L41161.1                 | NT                            | Mus musculus SM22 alpha gene, exon 1   |
| 11687                  | 24688                 | 38378             | 3.46                 | 4.9E-02                                       | AF008303.1               | NT                            | Homo sapiens prepro placental TGF-beta gene, complete cds  |
| 12957                  | 25624                 |                   | 3.23                 | 4.9E-02                                       | M19384.1                 | NT                            | Human gamma-B-crystallin (gamma 1-2) and gamma-C-crystallin (gamma 2-1) genes, complete cds  |
| 340                    | 13552                 | 26582             | 1.19                 | 4.8E-02                                       | D16471.1                 | NT                            | Human mRNA, Xq terminal portion  |
| 341                    | 13552                 | 26582             | 2.81                 | 4.8E-02                                       | D16471.1                 | NT                            | Human mRNA, Xq terminal portion  |
| 501                    | 13686                 | 26728             | 11.83                | 4.8E-02                                       | AF003100.1               | NT                            | Arabidopsis thaliana AP2 domain containing protein RAP2.7 mRNA, partial cds  |
| 2347                   | 15478                 | 28610             | 2.08                 | 4.8E-02                                       | W51983.1                 | EST_HUMAN                     | z48a02.s1 Soares, senescent, fibroblasts_NHFSF Homo sapiens cDNA clone IMAGE:325611 3' similar to gb:U90938 LUPUS KU AUTOANTIGEN PROTEIN P88 (HUMAN);                |
| 3280                   | 16454                 | 28478             | 1.79                 | 4.8E-02                                       | X17144.1                 | NT                            | Tetrahymena rostrata histone H3II and histone H4II intragenic DNA  |
| 4793                   | 17928                 |                   | 1.08                 | 4.8E-02                                       | Z84280.1                 | NT                            | S.scrofa gene for skeletal muscle ryanodine receptor   |
| 5237                   | 18359                 | 31328             | 0.98                 | 4.8E-02                                       | U61914.1                 | NT                            | Streptococcus constellatus D-alanine D-alanine ligase gene, partial cds  |
| 8332                   | 21414                 | 34940             | 1.41                 | 4.8E-02                                       | AW388487.1               | EST_HUMAN                     | MIR2-S10128-221098-012-b02 S10128 Homo sapiens cDNA  |
| 9329                   | 22405                 | 35657             | 1.01                 | 4.8E-02                                       | AJ001398.1               | NT                            | Fugu rubripes rps24 gene   |
| 9329                   | 22405                 | 35658             | 1.01                 | 4.8E-02                                       | AJ001398.1               | NT                            | Fugu rubripes rps24 gene   |
| 8828                   | 22405                 |                   | 1.84                 | 4.8E-02                                       | X61236.1                 | NT                            | S.cerevisiae NUM1 gene, involved in nuclear migration control  |
| 11219                  | 24288                 | 37928             | 1.84                 | 4.8E-02                                       | X61236.1                 | NT                            | S.cerevisiae NUM1 gene, involved in nuclear migration control  |
| 11219                  | 24288                 | 37929             | 1.84                 | 4.8E-02                                       | X61236.1                 | NT                            | Streptococcus thermophilus bacteriophage Sif19, complete genome  |
| 12511                  | 25350                 |                   | 1.46                 | 4.8E-02                                       | 9832893                  | NT                            | Rattus norvegicus Nethn (Nes), mRNA  |
| 5122                   | 18248                 | 31214             | 0.74                 | 4.7E-02                                       | 6881281                  | NT                            |  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLASTE<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|--|--------------------------|-------------------------------|---|
| 6969                   | 20197                 | 33623             | 3.34                 | 4.7E-02                                      | W01153.1                 | EST_HUMAN                     | y29709.1 Scores melanocyte 2NblHM Homo sapiens cDNA clone IMAGE:291017 5' similar to contains Alu repetitive element                      |
| 7025                   | 20161                 | 33581             | 0.89                 | 4.7E-02                                      | BF68625.1                | EST_HUMAN                     | 602143554F1 NIH_MGC_48 Homo sapiens cDNA clone IMAGE:4304772 5'   |
| 7025                   | 20161                 | 33582             | 0.89                 | 4.7E-02                                      | BF68625.1                | EST_HUMAN                     | 602143554F1 NIH_MGC_48 Homo sapiens cDNA clone IMAGE:4304772 5'   |
| 7058                   | 20111                 | 33527             | 1.71                 | 4.7E-02                                      | M62752.1                 | NT                            | Rat statin-related protein (s1) gene, complete CDS  |
| 8446                   | 21626                 | 35053             | 9.44                 | 4.7E-02                                      | X15543.1                 | NT                            | B. taurus mRNA for RF-38-DNA-binding protein  |
| 9154                   | 22232                 | 35777             | 1.31                 | 4.7E-02                                      | X98211.1                 | NT                            | H. sapiens DNA for endogenous retroviral like element   |
| 9176                   | 22254                 |                   | 2.97                 | 4.7E-02                                      | AB028678.1               | NT                            | Gallus gallus Wpct-8 gene, complete cds   |
| 9428                   | 22502                 | 36068             | 7.75                 | 4.7E-02                                      | X15543.1                 | NT                            | B. taurus mRNA for RF-38-DNA-binding protein  |
| 9636                   | 22875                 |                   | 0.7                  | 4.7E-02                                      | A1873042.1               | EST_HUMAN                     | we79c10.x1 Scores_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2347314 3'   |
| 11852                  | 24841                 | 38535             | 1.43                 | 4.7E-02                                      | U73621.1                 | NT                            | Bos taurus paired box protein (pax-6) gene, partial cds   |
| 11852                  | 24841                 | 38536             | 1.43                 | 4.7E-02                                      | U73621.1                 | NT                            | Bos taurus paired box protein (pax-6) gene, partial cds   |
| 12446                  | 26162                 |                   | 4.31                 | 4.7E-02                                      | AV648521.1               | EST_HUMAN                     | AV648521 GLC Homo sapiens cDNA clone GLC3K002 3'  |
| 281                    | 13488                 | 26531             | 0.89                 | 4.6E-02                                      | BE153583.1               | EST_HUMAN                     | PMO-HT0339-251199-003-g05 HT0339 Homo sapiens cDNA  |
| 758                    | 13939                 | 26884             | 2.89                 | 4.6E-02                                      | AED00445.1               | NT                            | Escherichia coli K-12 MG1655 section 335 of 400 of the complete genome  |
| 1320                   | 14476                 |                   | 1.49                 | 4.6E-02                                      | A014255.1                | EST_HUMAN                     | em5002.e1 Johnston frontal cortex Homo sapiens cDNA clone IMAGE:1538979 3' similar to TR.P00533   |
| 1390                   | 14644                 | 27620             | 5.39                 | 4.6E-02                                      | AV727059.1               | EST_HUMAN                     | P00533 LIMA ; contains element LTR1 repetitive element ;  |
| 2557                   | 15652                 | 28807             | 2.34                 | 4.6E-02                                      | AW236023.1               | EST_HUMAN                     | AV727059 HTC Homo sapiens cDNA clone HTCBW C01 5'   |
| 2868                   | 13488                 | 26531             | 1.78                 | 4.6E-02                                      | BE153583.1               | EST_HUMAN                     | xr24r03.x1 NC1_OGAP_Kid11 Homo sapiens cDNA clone IMAGE:2684653 3' similar to SW:GRF1_HUMAN   |
| 3073                   | 16249                 | 29270             | 0.84                 | 4.6E-02                                      | BE153583.1               | EST_HUMAN                     | O12849 G-RICH SEQUENCE FACTOR-1 ;   |
| 3416                   | 16249                 | 29270             | 0.89                 | 4.6E-02                                      | BE153583.1               | EST_HUMAN                     | PMO-HT0339-251199-003-g05 HT0339 Homo sapiens cDNA  |
| 3555                   | 16249                 | 29270             | 0.94                 | 4.6E-02                                      | BE153583.1               | EST_HUMAN                     | PMO-HT0339-251199-003-g05 HT0339 Homo sapiens cDNA  |
| 4239                   | 17395                 |                   | 0.82                 | 4.6E-02                                      | AF220385.1               | NT                            | PMO-HT0339-251199-003-g05 HT0339 Homo sapiens cDNA  |
| 5852                   | 19042                 | 32348             | 1.67                 | 4.6E-02                                      | AF076982.1               | NT                            | Mus musculus nucleolar RNA helicase III(Gu (dxb21) gene, complete cds   |
| 6359                   | 19529                 | 32887             | 3.67                 | 4.6E-02                                      | X61624.1                 | NT                            | Haplochromis burtoni gonadotropin-releasing hormone and GnRH-associated peptide precursor (Gnrh2) gene, complete cds                      |
| 6359                   | 19529                 | 32888             | 3.67                 | 4.6E-02                                      | X61624.1                 | NT                            | G. rehnhardti ebp2 (ebp8) mRNA  |
| 6836                   | 20251                 | 33687             | 1.41                 | 4.6E-02                                      | AH49574.1                | EST_HUMAN                     | G. rehnhardti ebp2 (ebp8) mRNA  |
| 8007                   | 21057                 | 34568             | 0.83                 | 4.6E-02                                      | 6978720                  | NT                            | gc06000.x1 Scores_placenta_809weeks_2NblHP089W Homo sapiens cDNA clone IMAGE:1713071 3' similar to contains L1.13 L1 repetitive element ; |
| 8856                   | 21935                 | 35472             | 3.81                 | 4.6E-02                                      | BE154006.1               | EST_HUMAN                     | Radius norvegicus Cathepsin H (Cath). mRNA  |
| 11689                  | 24687                 | 38377             | 3.39                 | 4.6E-02                                      | AA913328.1               | EST_HUMAN                     | PMO-HT0339-060400-009-G12 HT0339 Homo sapiens cDNA  |

Table 4  
Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 13078                  | 25708                 |                   | 3.14                 | 4.6E-02                                       | X57808.1                 | NT                            | Human germ-line immunoglobulin lambda light chain gene   |
| 460                    | 13665                 | 26693             | 2.24                 | 4.5E-02                                       | P22448                   | SWISSPROT                     | RETINOIC ACID RECEPTOR BETA (RAR-BETA)   |
| 1245                   | 14404                 | 27465             | 1.52                 | 4.5E-02                                       | AF005730.1               | NT                            | Marburg virus strain M/S Africa/Johannesburg/1976/Ozolin VP35 gene, complete cds   |
| 1245                   | 14404                 | 27466             | 1.62                 | 4.5E-02                                       | AF005730.1               | NT                            | Marburg virus strain M/S Africa/Johannesburg/1976/Ozolin VP35 gene, complete cds   |
| 1847                   | 14993                 | 28095             | 4.93                 | 4.5E-02                                       | P32182                   | SWISSPROT                     | HEPATOCYTE NUCLEAR FACTOR 3-BETA (HNF-3B)  |
| 2177                   | 15312                 | 28440             | 2.2                  | 4.5E-02                                       | AE003964.1               | NT                            | Xyella fastidiosa, section 110 of 229 of the complete genome   |
| 3817                   | 16977                 | 29881             | 5.04                 | 4.5E-02                                       | AL163278.2               | NT                            | Homo sapiens chromosome 21 segment HS21C078  |
| 6360                   | 18530                 | 32889             | 1.63                 | 4.5E-02                                       | AJ400877.1               | NT                            | Homo sapiens ASOL3 gene, CEGP1 gene, C11orf14 gene, C11orf15 gene, C11orf16 gene and C11orf17 gene   |
| 6636                   | 18795                 | 33184             | 0.84                 | 4.5E-02                                       | AL163280.2               | NT                            | Homo sapiens chromosome 21 segment HS21C080  |
| 7018                   | 20154                 | 33574             | 0.59                 | 4.5E-02                                       | L28487.1                 | NT                            | Methanosarcina frisia carbon monoxide dehydrogenase large subunit (cdh1A) gene, carbon monoxide dehydrogenase small subunit (cdh1B) gene, complete cds |
| 7018                   | 20154                 | 33575             | 0.59                 | 4.5E-02                                       | L28487.1                 | NT                            | Methanosarcina frisia carbon monoxide dehydrogenase large subunit (cdh1A) gene, carbon monoxide dehydrogenase small subunit (cdh1B) gene, complete cds |
| 8587                   | 21688                 | 35207             | 2.24                 | 4.5E-02                                       | AF036884.1               | NT                            | Arabidopsis thaliana CCAAT-box binding factor HAP3 homolog gene, complete cds  |
| 10155                  | 23192                 | 36788             | 4.2                  | 4.5E-02                                       | A325216.1                | EST_HUMAN                     | EST28167 Caroballum II Homo sapiens cDNA 5' end similar to similar to neuro-D4 protein   |
| 10305                  | 23340                 | 36946             | 0.47                 | 4.5E-02                                       | X95508.1                 | NT                            | A. europaeum mRNA for legumin-like protein   |
| 10421                  | 23456                 | 37061             | 0.79                 | 4.5E-02                                       | AB000470.1               | NT                            | Gallus gallus mRNA for alpha1 Integrin, complete cds   |
| 12442                  | 25313                 | 32089             | 2.61                 | 4.5E-02                                       | 11418013                 | NT                            | Homo sapiens ret finger protein-like 3 (RFP13), mRNA   |
| 12891                  | 26051                 | 31684             | 3.79                 | 4.6E-02                                       | AA191097.1               | EST_HUMAN                     | z04Sf11.1 Strabagene INT neuron (#837233) Homo sapiens cDNA clone IMAGE:532493 5'  |
| 227                    | 13449                 | 27273             | 4.35                 | 4.4E-02                                       | BE972783.1               | EST_HUMAN                     | 601652154F1 NIH_MGC_82 Homo sapiens cDNA clone IMAGE:2933386 5'  |
| 1050                   | 14216                 | 27273             | 0.77                 | 4.4E-02                                       | L19295.1                 | NT                            | Drosophila melanogaster extracellular (EXD) mRNA, complete cds   |
| 2163                   | 15289                 |                   | 6.82                 | 4.4E-02                                       | P31568                   | SWISSPROT                     | HYPOTHETICAL PROTEIN (ORF 2280)  |
| 2559                   | 15694                 | 28809             | 1.81                 | 4.4E-02                                       | AW875475.1               | EST_HUMAN                     | QV2-PT0012-010300-070-g02 PT0012 Homo sapiens cDNA   |
| 3730                   | 16891                 | 28895             | 1.68                 | 4.4E-02                                       | AF159160.1               | NT                            | Mycobacterium xenophilus serine/threonine kinase Pkn10 (pkn10) gene, complete cds  |
| 4750                   | 17885                 | 30866             | 1.33                 | 4.4E-02                                       | AF109907.1               | NT                            | Homo sapiens S164 gene, partial cds; PS1 and hypothetical protein genes, complete cds; and S171 gene, partial cds                                      |
| 4750                   | 17885                 | 30867             | 1.33                 | 4.4E-02                                       | AF109907.1               | NT                            | Homo sapiens S164 gene, partial cds; PS1 and hypothetical protein genes, complete cds; and S171 gene, partial cds                                      |
| 7267                   | 20350                 | 33802             | 0.59                 | 4.4E-02                                       | AF095824.1               | NT                            | Caris familiaris matrix metalloproteinase 9 (MMP-9) mRNA, partial cds  |
| 7267                   | 20350                 | 33803             | 0.59                 | 4.4E-02                                       | AF095824.1               | NT                            | Caris familiaris matrix metalloproteinase 9 (MMP-9) mRNA, partial cds  |
| 8952                   | 22031                 | 35572             | 2.34                 | 4.4E-02                                       | AA736869.1               | EST_HUMAN                     | nr131903.1 NCI_CGAP_SS1 Homo sapiens cDNA clone IMAGE:1239221 3'   |
| 11328                  | 24389                 | 38034             | 2.64                 | 4.4E-02                                       | AF080689.1               | NT                            | Hepatitis E virus strain HEV-US2 polyprotein (ORF1), (ORF3), and capsid protein (ORF2) genes, complete cds   |



Page 150 of 550

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO. | Exon<br>SEQ ID<br>NO. | ORF SEQ<br>ID NO. | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 11477                  | 24536                 | 38206             | 3.08                 | 4.4E-02                                       | AA498739.1               | EST_HUMAN                     | aa33104.L1 Gessler Wilms tumor Homo sapiens cDNA clone IMAGE:897831 5'   |
| 12158                  | 25126                 |                   | 4.55                 | 4.4E-02                                       | AB040928.1               | NT                            | Homo sapiens mRNA for KIAA1483 protein, partial cds  |
| 12347                  | 26182                 |                   | 1.65                 | 4.4E-02                                       | BF241245.1               | EST_HUMAN                     | 601878748F1 NIH_MGC_55 Homo sapiens cDNA clone IMAGE:4107418 5'  |
| 802                    | 13982                 | 27034             | 7.25                 | 4.3E-02                                       | AF003249.1               | NT                            | Morone saxatilis myosin heavy chain FM3A (FM3A) mRNA, complete cds   |
| 2634                   | 15757                 | 28671             | 1.55                 | 4.3E-02                                       | AF704878.1               | EST_HUMAN                     | AV704878 ADB Homo sapiens cDNA clone ADBA0H08 5'   |
| 3516                   | 16682                 | 29683             | 9.18                 | 4.3E-02                                       | AL163210.2               | NT                            | Homo sapiens chromosome 21 segment HS21C010  |
| 3749                   | 16910                 |                   | 1.21                 | 4.3E-02                                       | AF060588.1               | NT                            | Homo sapiens promyelocytic leukemia zinc finger protein (PLZF) gene, complete cds  |
| 6829                   | 19785                 | 33172             | 4.94                 | 4.3E-02                                       | P30427                   | SWISSPROT                     | PLECTIN  |
| 6825                   | 19785                 | 33173             | 4.94                 | 4.3E-02                                       | P30427                   | SWISSPROT                     | PLECTIN  |
| 6871                   | 20023                 | 33433             | 0.8                  | 4.3E-02                                       | AA662288.1               | EST_HUMAN                     | ns80c12.s1 NCL CGAP_P12 Homo sapiens cDNA clone IMAGE:1188898  |
| 8711                   | 21791                 | 35327             | 0.69                 | 4.3E-02                                       | AF283369.1               | NT                            | Homo sapiens desmocollin 3 (DSC3) gene, complete cds, alternatively spliced  |
| 9001                   | 22080                 | 35621             | 1.32                 | 4.3E-02                                       | X55322.1                 | NT                            | H.sapiens NCAM mRNA for neural cell adhesion molecule  |
| 9001                   | 22080                 | 35622             | 1.32                 | 4.3E-02                                       | X55322.1                 | NT                            | H.sapiens NCAM mRNA for neural cell adhesion molecule  |
| 12412                  | 25291                 |                   | 1.2                  | 4.3E-02                                       | AL139077.2               | NT                            | Campylobacter jejuni NCTC11109 complete genome; segment 4/6  |
| 845                    | 14023                 | 27081             | 1.74                 | 4.2E-02                                       | AU123327.1               | EST_HUMAN                     | AU123327 NT2RM2 Homo sapiens cDNA clone NT2RM2000020 5'  |
| 889                    | 14065                 |                   | 2.4                  | 4.2E-02                                       | AU123327.1               | EST_HUMAN                     | AU123327 NT2RM2 Homo sapiens cDNA clone NT2RM2000020 5'  |
| 919                    | 14094                 | 27159             | 1.51                 | 4.2E-02                                       | AW003646.1               | EST_HUMAN                     | w234q01.x1 NCL CGAP_P11 Homo sapiens cDNA clone IMAGE:2545584 3' similar to TR:Q63291 Q63291   |
| 1768                   | 14907                 |                   | 1.37                 | 4.2E-02                                       | AL445068.1               | NT                            | L1 RETROPOSON, ORF2 MRNA contains L1.13 L1 L1 repetitive element;  |
| 1819                   | 14988                 | 28060             | 0.89                 | 4.2E-02                                       | P23091                   | SWISSPROT                     | Thermoplasma acidophilum complete genome; segment 4/5  |
| 3754                   | 18915                 | 28918             | 1.68                 | 4.2E-02                                       | P23091                   | SWISSPROT                     | TRANSFORMING PROTEIN MAF   |
| 4885                   | 17898                 | 30862             | 0.59                 | 4.2E-02                                       | BF342985.1               | EST_HUMAN                     | TRANSFORMING PROTEIN MAF   |
|                        |                       |                   |                      |   |                          |                               | 602017105F1 NCL CGAP_Bm84 Homo sapiens cDNA clone IMAGE:4152872 5'   |
| 5735                   | 18828                 | 32224             | 0.74                 | 4.2E-02                                       | AF280107.1               | NT                            | Homo sapiens cytochrome P450 polypeptide 49 (CYP3A49) gene, partial cds; cytochrome P450 polypeptide 4 (CYP3A4) and cytochrome P450 polypeptide 7 (CYP3A7) genes, complete cds; and cytochrome P450 polypeptide 5 (CYP3A5) gene, partial cds |
| 5735                   | 18828                 | 32225             | 0.74                 | 4.2E-02                                       | AF280107.1               | NT                            | Homo sapiens cytochrome P450 polypeptide 49 (CYP3A49) gene, partial cds; cytochrome P450 polypeptide 4 (CYP3A4) and cytochrome P450 polypeptide 7 (CYP3A7) genes, complete cds; and cytochrome P450 polypeptide 5 (CYP3A5) gene, partial cds |
| 7122                   | 18548                 | 31480             | 0.61                 | 4.2E-02                                       | BE268286.1               | EST_HUMAN                     | Homo sapiens cytochrome P450 polypeptide 7 (CYP3A7) genes, complete cds; and cytochrome P450 polypeptide 5 (CYP3A5) gene, partial cds  |
| 7696                   | 20760                 | 34244             | 4.35                 | 4.2E-02                                       | AF276752.1               | NT                            | Legionella pneumophila catalase-peroxidase (katA) gene, complete cds   |
| 7717                   | 20781                 | 34267             | 0.61                 | 4.2E-02                                       | AF730347.1               | EST_HUMAN                     | AV730347 HTF Homo sapiens cDNA clone HTFAV104 5'   |
| 9010                   | 22089                 | 35631             | 3.82                 | 4.2E-02                                       | P05095                   | SWISSPROT                     | ALPHA-ACTININ 3, NON MUSCULAR (F-ACTIN CROSS LINKING PROTEIN)  |
| 10367                  | 23402                 | 37013             | 1.46                 | 4.2E-02                                       | Q16850                   | SWISSPROT                     | T-BRAIN-1 PROTEIN (T-BOX BRAIN PROTEIN 1) (TBR-1) (TES-66)   |

Page 151 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 11285                  | 24361                 | 38002             | 1.52                 | 4.2E-02                                       | AA978118.1               | EST_HUMAN                     | cr33b11.s1 NCI_CGAP_Lu5 Homo sapiens cDNA clone IMAGE:1658481 3' similar to gb:M65290<br>INTERLEUKIN-12 BETA CHAIN PRECURSOR (HUMAN);  |
| 11587                  | 24840                 | 38320             | 2.83                 | 4.2E-02                                       | BE815822.1               | EST_HUMAN                     | PM3-BN0174-250500-009-d10 BN0174 Homo sapiens cDNA   |
| 11587                  | 24840                 | 38321             | 2.83                 | 4.2E-02                                       | BE815822.1               | EST_HUMAN                     | PM3-BN0174-250500-009-d10 BN0174 Homo sapiens cDNA   |
| 11785                  | 24785                 | 38483             | 1.52                 | 4.2E-02                                       | AF176458.1               | NT                            | PRRS isolate PRRSV38 envelope glycoprotein gene, complete cds  |
| 12729                  | 26109                 |                   | 6.64                 | 4.2E-02                                       | AF183494.1               | EST_HUMAN                     | w49g10.x1 NCI_CGAP_Pan1 Homo sapiens cDNA clone IMAGE:2510850 3'   |
| 13076                  | 25705                 |                   | 1.17                 | 4.2E-02                                       | D14711.1                 | NT                            | Staphylococcus aureus HSP10 and HSP60 genes  |
| 523                    | 13716                 | 26743             | 1.85                 | 4.1E-02                                       | AF200628.1               | NT                            | Homo sapiens HPS1 gene, intron 5   |
| 2741                   | 15858                 | 28970             | 1.06                 | 4.1E-02                                       | AE002330.2               | NT                            | Chlamydia muridarum, section 60 of 85 of the complete genome   |
| 4005                   | 17162                 | 30168             | 0.61                 | 4.1E-02                                       | BE297236.1               | EST_HUMAN                     | 601177907F1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:3533353 5'  |
| 4005                   | 17162                 | 30169             | 0.61                 | 4.1E-02                                       | BE297236.1               | EST_HUMAN                     | 601177907F1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:3533353 5'  |
| 4595                   | 17732                 |                   | 8.4                  | 4.1E-02                                       | AW893484.1               | EST_HUMAN                     | QV1-NN0012-180400-184-103 NN0012 Homo sapiens cDNA   |
| 5229                   | 18351                 |                   | 0.91                 | 4.1E-02                                       | X85880.1                 | NT                            | L monocytogenes type 3 partial lap gene (strain 443)   |
| 5768                   | 18951                 | 32263             | 1.06                 | 4.1E-02                                       | BE251894.1               | EST_HUMAN                     | 601107635F1 NIH_MGC_16 Homo sapiens cDNA clone IMAGE:3343856 5'  |
| 5759                   | 18951                 | 32264             | 1.06                 | 4.1E-02                                       | BE251894.1               | EST_HUMAN                     | 601107635F1 NIH_MGC_16 Homo sapiens cDNA clone IMAGE:3343856 5'  |
| 7022                   | 20158                 |                   | 0.98                 | 4.1E-02                                       | X75881.1                 | NT                            | A. thaliana mRNA for plasma membrane intrinsic protein 1a  |
| 7248                   | 20331                 | 33778             | 1.38                 | 4.1E-02                                       | AE002132.1               | NT                            | Ureaplasma urealyticum section 33 of 59 of the complete genome   |
| 7682                   | 20747                 | 34228             | 1.79                 | 4.1E-02                                       | 7682347                  | NT                            | Homo sapiens KIAA0867 protein (KIAA0867), mRNA   |
| 7778                   | 20834                 | 34325             | 20.08                | 4.1E-02                                       | L02110.1                 | NT                            | Mus musculus proviral retroviral insertion in the cGMP-phosphodiesterase (rd beta PDE) gene, intron 1, with the proviral insert encompassing the env pseudogene (3' end) and 3' LTR  |
| 7842                   | 20992                 | 34502             | 2.81                 | 4.1E-02                                       | AF026188.1               | NT                            | Fugu rubripes neural cell adhesion molecule L1 homolog (L1-CAM) gene, complete cds; putative protein 1 (PUT1) gene, partial cds; mitosis-specific chromosome segregation protein SMC1 homolog (SMC1) gene, complete cds; and calcium channel alpha-1 subunit |
| 8402                   | 21483                 | 35011             | 0.74                 | 4.1E-02                                       | P07887                   | SWISSPROT                     | ADAM-TS 1 PRECURSOR (A DISINTEGRIN AND METALLOPROTEINASE WITH THROMBOSPONDIN MOTIFS 1) (ADAMTS-1) (ADAM-TS1)   |
| 8845                   | 21924                 | 35462             | 0.79                 | 4.1E-02                                       | P34687                   | SWISSPROT                     | MOTIFS 1 (ADAMTS-1) (ADAM-TS1)   |
| 8855                   | 22430                 | 35988             | 0.87                 | 4.1E-02                                       | AA372398.1               | EST_HUMAN                     | GUTICLE COLLAGEN 34  |
| 13112                  | 26110                 | 31666             | 9.81                 | 4.1E-02                                       | AJ271909.1               | NT                            | EST184291 Colon adenocarcinoma IV Homo sapiens cDNA 5' end   |
| 3316                   | 16489                 | 29507             | 3.85                 | 4.0E-02                                       | AB040804.1               | NT                            | Brassica napus gln gene for plasmid glutamine synthetase, exons 1-12   |
| 3800                   | 17050                 | 30058             | 1.09                 | 4.0E-02                                       | L11810.1                 | NT                            | Homo sapiens mRNA for KIAA1471 protein, partial cds  |
| 5495                   | 18894                 | 31710             | 5.31                 | 4.0E-02                                       | AF280107.1               | NT                            | Human retinoblastoma susceptibility gene exons 1-27, complete cds  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens cytochrome P450 polypeptide 43 (CYP3A43) gene, partial cds; cytochrome P450 polypeptide 4 (CYP3A4) and cytochrome P450 polypeptide 7 (CYP3A7) genes, complete cds; and cytochrome P450 polypeptide 5 (CYP3A5) gene, partial cds                 |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 6343                   | 19513                 | 32870             | 0.98                 | 4.0E-02                                       | BF110434.1               | EST_HUMAN                     | 7n52n07.x1 NCI_CGAP_L124 Homo sapiens cDNA clone IMAGE:3569380 3' similar to TR:O75296.O75298<br>R29124.1. |
| 7887                   | 20921                 | 34428             | 5.99                 | 4.0E-02                                       | L23838.1                 | NT                            | Strongylocentrotus purpuratus homodog of human bone morphogenetic protein 1 (submp) mRNA, complete<br>cds  |
| 7829                   | 20979                 |                   | 0.71                 | 4.0E-02                                       | AL161535.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 35  |
| 7943                   | 20963                 | 34503             | 0.8                  | 4.0E-02                                       | AB000381.1               | NT                            | Homo sapiens DNA for GPI-anchored molecule-like protein, complete cds                                      |
| 7943                   | 20963                 | 34504             | 0.8                  | 4.0E-02                                       | AB000381.1               | NT                            | Homo sapiens DNA for GPI-anchored molecule-like protein, complete cds                                      |
| 7960                   | 21029                 | 34543             | 0.61                 | 4.0E-02                                       | AF288153.1               | NT                            | Homo sapiens erythrocyte tropomodulin (E-TMOD) gene, exon 7  |
| 8914                   | 21993                 | 35532             | 2.52                 | 4.0E-02                                       | P08640                   | SWISSPROT                     | GLUCOAMYLASE S1/S2 PRECURSOR (GLUCAN 1,4-ALPHA-GLUCOSIDASE) (1,4-ALPHA-D-GLUCAN<br>GLUCOHYDROLASE)         |
| 9844                   | 22894                 |                   | 0.63                 | 4.0E-02                                       | BF076378.1               | EST_HUMAN                     | 602153684F1 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:4294724 5'  |
| 9869                   | 22908                 | 36495             | 2.46                 | 4.0E-02                                       | AJ001094.1               | NT                            | Methanobacterium thermoautotrophilum strain Marburg, Thid:umarate reductase subunit A                      |
| 10190                  | 29227                 |                   | 1.08                 | 4.0E-02                                       | D43949.1                 | NT                            | Human mRNA for KIAA0082 gene, partial cds  |
| 12073                  | 25054                 |                   | 1.52                 | 4.0E-02                                       | AJ001018.1               | NT                            | Kluyveromyces fragilis gene for CcpA ATPase  |
| 12353                  | 26008                 | 31859             | 18.34                | 4.0E-02                                       | AJ001056.1               | NT                            | Ovis aries mRNA for acetyl-coA carboxylase   |
| 1144                   | 14309                 | 27368             | 2.79                 | 3.9E-02                                       | BF516149.1               | EST_HUMAN                     | UHL-BW1-emb-h-08-0-LJ1 NCI_CGAP_Sub7 Homo sapiens cDNA clone IMAGE:3084134 3'                              |
| 1376                   | 14530                 | 27603             | 2.15                 | 3.9E-02                                       | P41047                   | SWISSPROT                     | FAS ANTIGEN LIGAND   |
| 2016                   | 15166                 | 28281             | 3.22                 | 3.9E-02                                       | AJ403366.1               | NT                            | Mimulus DNA for cleavage-binding fragment DesD7  |
| 2769                   | 18894                 |                   | 1.97                 | 3.9E-02                                       | 4506882                  | NT                            | Homo sapiens succinate dehydrogenase complex, subunit C, integral membrane protein, 15kD (SDHC)<br>mRNA    |
| 6246                   | 18367                 | 31334             | 0.67                 | 3.9E-02                                       | AW392417.1               | EST_HUMAN                     | RC8-ST0258-17169-021-Q09 ST0258 Homo sapiens cDNA  |
| 6270                   | 18398                 | 31368             | 0.9                  | 3.9E-02                                       | 8924019                  | NT                            | Homo sapiens hypothetical protein PRO1163 (PRO1163), mRNA  |
| 5279                   | 18398                 | 31367             | 0.8                  | 3.9E-02                                       | 8924019                  | NT                            | Homo sapiens hypothetical protein PRO1163 (PRO1163), mRNA  |
| 5849                   | 18039                 | 32346             | 1                    | 3.9E-02                                       | BE089841.1               | EST_HUMAN                     | 601649874F1 NIH_MGC_74 Homo sapiens cDNA clone IMAGE:3033842 5'  |
| 5977                   | 18162                 | 32482             | 0.65                 | 3.9E-02                                       | BF076203.1               | EST_HUMAN                     | 602138132F1 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:4274910 5'  |
| 7203                   | 20068                 | 33478             | 0.97                 | 3.9E-02                                       | BE271437.1               | EST_HUMAN                     | 601140729F1 NIH_MGC_9 Homo sapiens cDNA clone IMAGE:3049630 5'   |
| 8023                   | 21106                 | 34623             | 1.44                 | 3.9E-02                                       | BF236613.1               | EST_HUMAN                     | 601606948F1 NIH_MGC_54 Homo sapiens cDNA clone IMAGE:4134779 5'  |
| 8250                   | 21332                 | 34849             | 0.6                  | 3.9E-02                                       | AJ228041.1               | NT                            | Homo sapiens 959 kb contig between AML1 and CBR1 on chromosome 21q22; segment 1/3                          |
| 8250                   | 21332                 | 34850             | 0.6                  | 3.9E-02                                       | AJ228041.1               | NT                            | Homo sapiens 959 kb contig between AML1 and CBR1 on chromosome 21q22; segment 1/3                          |
| 11060                  | 21071                 | 34582             | 1.58                 | 3.9E-02                                       | P48778                   | SWISSPROT                     | ANTIGEN GOR  |
| 12184                  | 26059                 |                   | 3.54                 | 3.9E-02                                       | AB042553.1               | NT                            | Felis catus G-CSF gene for granulocyte colony-stimulating factor, complete cds                             |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 12938                  | 25505                 |                   | 2.35                 | 3.6E-02                                       | U86091.1                 | NT                            | Human germline T-cell receptor beta chain TCRBV17S1A1T, TCRBV2S1, TCRBV10S1P, TCRBV29S1P, TCRBV18S1P, TCRBV19S1, TCRBV11S1A1T, HVB refc, TCRBV28S1P, TCRBV34S1, TCRBV14S1, TCRBV3S1, TCRBV4S1A1T, TRY4, TRY5, TRY6, TRY7, TRY8, TCRBD1, TCRBJ1S1, TCRBJ1S2> |
| 13036                  | 25979                 |                   | 64.99                | 3.6E-02                                       | AL049898.2               | NT                            | Mus musculus chromosome X contigB1; X-linked lymphocyte regulated 5 gene, Zinc finger protein 275, Zinc finger protein 92, mmx28orf   |
| 5556                   | 18754                 | 31782             | 0.8                  | 3.8E-02                                       | M11228.1                 | NT                            | Human protein C gene, complete cds  |
| 6212                   | 19397                 | 32798             | 1.04                 | 3.8E-02                                       | P10284                   | SWISSPROT                     | HOMEOBOX PROTEIN HOXB4 (HOX-2.6)  |
| 7471                   | 20546                 | 34018             | 1.72                 | 3.8E-02                                       | 6005700                  | NT                            | Homo sapiens ATP-binding cassette, sub-family A (ABC1), member 8 (ABCA8), mRNA  |
| 8864                   | 21943                 |                   | 1.51                 | 3.8E-02                                       | M60675.1                 | NT                            | Human von Willebrand factor gene, exons 23 through 34   |
| 10789                  | 23822                 | 37446             | 0.64                 | 3.8E-02                                       | 7662563                  | NT                            | Homo sapiens PRO0614 protein (PRO0514), mRNA  |
| 10888                  | 23972                 | 37603             | 1.71                 | 3.8E-02                                       | AF143952.2               | NT                            | Homo sapiens PELOTA (PELOTA) gene, complete cds   |
| 1016                   | 14187                 | 27248             | 4.05                 | 3.7E-02                                       | P19137                   | SWISSPROT                     | LAMININ ALPHA-1 CHAIN PRECURSOR (LAMININ A CHAIN)   |
| 2310                   | 15442                 | 28577             | 6.19                 | 3.7E-02                                       | A084806.1                | EST_HUMAN                     | wf85e08.x1 NC1_CGAP_K111 Homo sapiens cDNA clone IMAGE:2494502 3'   |
| 2645                   | 16768                 | 28883             | 0.97                 | 3.7E-02                                       | A018261.1                | NT                            | Homo sapiens mRNA for KIAA0718 protein, partial cds   |
| 3116                   | 16291                 | 29308             | 1.13                 | 3.7E-02                                       | P79944                   | SWISSPROT                     | EOMESODERMIN  |
| 3117                   | 16293                 | 29307             | 4.33                 | 3.7E-02                                       | BF312863.1               | EST_HUMAN                     | 601896233F1 NIH_MGC_18 Homo sapiens cDNA clone IMAGE:4125584 5'   |
| 3543                   | 16708                 |                   | 0.91                 | 3.7E-02                                       | 6880541                  | NT                            | Mus musculus potassium large conductance pH-sensitive channel, subfamily M, alpha member 3 (Kcnma3), mRNA   |
| 7726                   | 26216                 |                   | 0.95                 | 3.7E-02                                       | AP000068.1               | NT                            | Aeropyrum pernix genomic DNA, section 6/7   |
| 7869                   | 20923                 | 34430             | 0.81                 | 3.7E-02                                       | AE003975.1               | NT                            | Xylella fastidiosa, section 121 of 229 of the complete genome   |
| 10219                  | 23256                 |                   | 1.01                 | 3.7E-02                                       | AA782516.1               | EST_HUMAN                     | ai55c08.s1 Scroea parathyroid tumor_NbH1PA Homo sapiens cDNA clone 1360912 3'   |
| 12227                  | 25176                 | 38837             | 7.41                 | 3.7E-02                                       | BF124074.1               | EST_HUMAN                     | 601782117F1 NIH_MGC_20 Homo sapiens cDNA clone IMAGE:4024973 5'   |
| 12861                  | 25945                 | 31764             | 3.71                 | 3.7E-02                                       | 11418392                 | NT                            | Homo sapiens solute carrier family 22 (organic cation transporter), member 1 (SLC22A1), mRNA  |
| 13058                  | 25688                 |                   | 1.23                 | 3.7E-02                                       | 11467432                 | NT                            | Odonatalia alenata chloroplast, complete genome   |
| 3744                   | 16905                 | 29809             | 0.82                 | 3.6E-02                                       | X73221.1                 | NT                            | H. vulgare Sst1 gene for sucrose synthase   |
| 3752                   | 16913                 | 29916             | 0.9                  | 3.6E-02                                       | AL098806.1               | NT                            | Homo sapiens genomic region containing hypervariable minisatellites chromosome 10(10q26.3) of Homo sapiens  |
| 5313                   | 18430                 | 31400             | 0.67                 | 3.6E-02                                       | AL098810.1               | NT                            | Homo sapiens genomic region containing hypervariable minisatellites chromosome 10(10q26.3) of Homo sapiens  |
| 5543                   | 18740                 | 31758             | 0.61                 | 3.6E-02                                       | X59403.1                 | NT                            | C.glutamicum gap, pgk and tpi genes for glyceraldhyde-3-phosphate, phosphoglycerate kinase and triosephosphate isomerase  |
| 5543                   | 18740                 | 31774             | 0.61                 | 3.6E-02                                       | X59403.1                 | NT                            | C.glutamicum gap, pgk and tpi genes for glyceraldhyde-3-phosphate, phosphoglycerate kinase and triosephosphate isomerase  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 5617                   | 18811                 | 31880             | 0.68                 | 3.6E-02                                       | AF181722.1               | NT                            | Homo sapiens RU2AS (RU2) mRNA, complete cds   |
| 6846                   | 19893                 | 33406             | 4.48                 | 3.6E-02                                       | AW946516.1               | EST_HUMAN                     | GM2-EN0013-110500-182-b10 EN0013 Homo sapiens cDNA  |
| 6846                   | 19899                 | 33407             | 4.48                 | 3.6E-02                                       | AW945510.1               | EST_HUMAN                     | GM2-EN0013-110500-182-b10 EN0013 Homo sapiens cDNA  |
| 7234                   | 20318                 | 33761             | 1.79                 | 3.6E-02                                       | AF025952.1               | NT                            | Chromatium vinosum sulfur globule protein Cyt precursor (sgp2) gene, complete cds   |
| 7458                   | 20534                 | 34009             | 2.89                 | 3.6E-02                                       | AA714521.1               | EST_HUMAN                     | rw20a05.s1 NCL CGAP_GC80 Homo sapiens cDNA clone IMAGE:1241024 3' similar to gb:J00314_ma2                                |
| 7811                   | 20866                 | 34360             | 0.94                 | 3.6E-02                                       | BE143078.1               | EST_HUMAN                     | TUBULIN BETA-1 CHAIN (HUMAN);   |
| 8591                   | 22846                 | 36216             | 2.18                 | 3.6E-02                                       | U20608.1                 | NT                            | MR0-HT0158-030200-003-b08 HT0158 Homo sapiens cDNA  |
| 8591                   | 22846                 | 36217             | 2.18                 | 3.6E-02                                       | U20608.1                 | NT                            | Dictyostelium discoideum unknown spore germination-specific protein-like protein, orf1, orf2 and orf3 genes, complete cds |
| 8591                   | 22846                 | 36217             | 2.18                 | 3.6E-02                                       | U20608.1                 | NT                            | Dictyostelium discoideum unknown spore germination-specific protein-like protein, orf1, orf2 and orf3 genes, complete cds |
| 9812                   | 22852                 | 36431             | 0.84                 | 3.6E-02                                       | BF947688.1               | EST_HUMAN                     | 602020453F1 NCL CGAP_Bm67 Homo sapiens cDNA clone IMAGE:4158118 5'  |
| 11456                  | 24516                 | 36183             | 1.49                 | 3.6E-02                                       | BF131609.1               | EST_HUMAN                     | 601820416F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:4052570 5'   |
| 11456                  | 24516                 | 36184             | 1.48                 | 3.6E-02                                       | BF131609.1               | EST_HUMAN                     | 601820416F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:4052570 5'   |
| 918                    | 14093                 | 27158             | 0.99                 | 3.5E-02                                       | U09506.1                 | NT                            | Drosophila melanogaster figgin mRNA, complete cds   |
| 1033                   | 14202                 | 27260             | 2.43                 | 3.5E-02                                       | AF253417.1               | NT                            | Homo sapiens microsomal epoxide hydrolase (EPHX1) gene, complete cds  |
| 1595                   | 14748                 | 27831             | 1.4                  | 3.5E-02                                       | BF678085.1               | EST_HUMAN                     | 602088136F1 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:4249377 5'   |
| 1595                   | 14748                 | 27832             | 1.4                  | 3.5E-02                                       | BF678085.1               | EST_HUMAN                     | 602088136F1 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:4249377 5'   |
| 4329                   | 17472                 | 30457             | 1.83                 | 3.5E-02                                       | AE001773.1               | NT                            | Thermoboga maritima section 85 of 138 of the complete genome  |
| 4435                   | 17676                 | 30556             | 1.11                 | 3.5E-02                                       | P53780                   | SWISSPROT                     | CYSTATHIONINE BETA-LYASE PRECURSOR (CBL) (BETA-CYSTATHIONASE) (CYSTEINE LYASE)  |
| 6351                   | 19521                 | 32878             | 1.76                 | 3.5E-02                                       | J01238.1                 | NT                            | Mizus actin 1 gene (MACT), complete cds   |
| 8165                   | 21247                 |                   | 0.91                 | 3.5E-02                                       | H25951.1                 | EST_HUMAN                     | jp44a05.r1 Soares retina N2b54HR Homo sapiens cDNA clone IMAGE:190256 5' similar to contains Alu repetitive element       |
| 8824                   | 21903                 | 35443             | 2.53                 | 3.5E-02                                       | BE989970.1               | EST_HUMAN                     | 601644701R2 NIH_MGC_56 Homo sapiens cDNA clone IMAGE:3828737 3'   |
| 10224                  | 23280                 | 36846             | 0.94                 | 3.5E-02                                       | X76942.1                 | NT                            | L.lactis MG1363 grpE and dnaK genes   |
| 10270                  | 23305                 | 36802             | 0.51                 | 3.5E-02                                       | BE581042.1               | EST_HUMAN                     | 601344661F1 NIH_MGC_8 Homo sapiens cDNA clone IMAGE:3677654 5'  |
| 11785                  | 24775                 | 38471             | 1.78                 | 3.5E-02                                       | AW861641.1               | EST_HUMAN                     | PM1-CT0328-291289-002-103 CT0328 Homo sapiens cDNA  |
| 11785                  | 24775                 | 38472             | 1.78                 | 3.5E-02                                       | AW861641.1               | EST_HUMAN                     | PM1-CT0328-291289-002-103 CT0328 Homo sapiens cDNA  |
| 12878                  | 25583                 |                   | 1.31                 | 3.5E-02                                       | AF009683.1               | NT                            | Homo sapiens T cell receptor beta locus, TCRBV8SSP to TORBV21S2A2 region  |
| 12955                  | 25901                 |                   | 2.71                 | 3.5E-02                                       | BE276848.1               | EST_HUMAN                     | 601178765F1 NIH_MGC_20 Homo sapiens cDNA clone IMAGE:3543833 5'   |
| 592                    | 13783                 | 26802             | 47.28                | 3.4E-02                                       | AK024424.1               | NT                            | Homo sapiens mRNA for FLJ00013 protein, partial cds   |
| 592                    | 13783                 | 26803             | 47.28                | 3.4E-02                                       | AK024424.1               | NT                            | Homo sapiens mRNA for FLJ00013 protein, partial cds   |
| 593                    | 13783                 | 26802             | 3.28                 | 3.4E-02                                       | AK024424.1               | NT                            | Homo sapiens mRNA for FLJ00013 protein, partial cds   |

Page 155 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 693                    | 13783                 | 26803             | 3.26                 | 3.4E-02                                       | AK024424.1               | NT                            | Homo sapiens mRNA for FL00013 protein, partial cds   |
| 1076                   | 14242                 | 27268             | 2.57                 | 3.4E-02                                       | AW274020.1               | EST_HUMAN                     | 3026d07.x1 Soares_NFL_T_03C_S1 Homo sapiens cDNA clone IMAGE:2814263 3' similar to SW:C211_HUMAN P53801 PUTATIVE SURFACE GLYCOPROTEIN C21ORF1 PRECURSOR;   |
| 1233                   | 14392                 |                   | 5.43                 | 3.4E-02                                       | 11345450                 | NT                            | Homo sapiens hypothetical protein FLJ13220 (FLJ13220), mRNA  |
| 2465                   | 15502                 |                   | 1.7                  | 3.4E-02                                       | T57160.1                 | EST_HUMAN                     | yc20e06.r1 Stragene lung (#937210) Homo sapiens cDNA clone IMAGE:81250 5' similar to contains MER29 repetitive element                                     |
| 3617                   | 16683                 | 26694             | 1.5                  | 3.4E-02                                       | AL163208.2               | NT                            | Homo sapiens chromosome 21 segment HS21C008  |
| 3875                   | 17034                 | 30032             | 0.81                 | 3.4E-02                                       | BE639514.1               | EST_HUMAN                     | RC3-FN0155-060700-011-d10 FN0155 Homo sapiens cDNA   |
| 4030                   | 17186                 | 30186             | 3.72                 | 3.4E-02                                       | AW794952.1               | EST_HUMAN                     | RC8-UM0015-210200-021-A10 UM0015 Homo sapiens cDNA   |
| 4720                   | 17855                 | 30838             | 2.77                 | 3.4E-02                                       | X59799.1                 | NT                            | Musculus S-antigen gene promoter region  |
| 5172                   | 18294                 |                   | 1.9                  | 3.4E-02                                       | Q28457                   | SWISSPROT                     | LA PROTEIN HOMOLOG (LA RIBONUCLEOPROTEIN) (LA AUTOANTIGEN HOMOLOG)   |
| 5180                   | 18311                 | 31277             | 1.81                 | 3.4E-02                                       | AJ012469.1               | NT                            | Caenorhabditis elegans mRNA for DYS-1 protein, partial   |
| 6983                   | 18512                 | 31604             | 4.68                 | 3.4E-02                                       | U24393.1                 | NT                            | Human histidine oxidase-like protein gene, exon 3  |
| 8458                   | 21537                 |                   | 3.15                 | 3.4E-02                                       | A1869629.1               | EST_HUMAN                     | w182d04.x1 NCI_CGAP_Bm25 Homo sapiens cDNA clone IMAGE:2433031 3'  |
| 8947                   | 22026                 | 35587             | 1.18                 | 3.4E-02                                       | AA064886.1               | EST_HUMAN                     | nu70f08.s1 NCI_CGAP_A1V1 Homo sapiens cDNA clone IMAGE:1216071 similar to contains Alu repetitive element/contains element MER25 MER26 repetitive element; |
|                        |                       |                   |                      |   |                          |                               | zq04f11.s1 Stragene muscle 637209 Homo sapiens cDNA clone IMAGE:628749 3' similar to TR:G1017425 G1017425  |
| 9118                   | 22187                 |                   | 5.28                 | 3.4E-02                                       | AA194306.1               | EST_HUMAN                     | IPSGKPLPKVTLSDRGVPLKATMRNFTEITAENLTINLKESVTADAGRYEITAAANSSGTTKAFINIVLDRPG  |
| 9880                   | 23019                 |                   | 0.66                 | 3.4E-02                                       | A1092718.1               | EST_HUMAN                     | PPT GPVVISDITEESVTLKWEPPKYDGSQVYNYLLKRETSATVWTEVSATVARTMMKVNKL ...;  |
| 383                    | 13591                 |                   | 6.8                  | 3.3E-02                                       | AA396735.1               | EST_HUMAN                     | cc0h08.x1 Soares_papillary tumor_NhpA Homo sapiens cDNA clone IMAGE:168519 3'  |
| 1183                   | 14365                 | 27413             | 12.43                | 3.3E-02                                       | AB035967.1               | NT                            | z76c08.s1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:728188 3'  |
| 1669                   | 14821                 | 27804             | 1.23                 | 3.3E-02                                       | AF110783.1               | NT                            | Cricetulus griseus CYP2A17 mRNA for cytochrome P450 2A17, complete cds   |
| 1778                   | 14927                 |                   | 1.37                 | 3.3E-02                                       | AE000700.1               | NT                            | Homo sapiens skeletal muscle LM-protein 1 (FHIL1) gene, complete cds   |
| 2149                   | 15285                 |                   | 2.02                 | 3.3E-02                                       | R09112.1                 | EST_HUMAN                     | Aquifex anaerobius section 32 of 109 of the complete genome  |
| 3445                   | 16813                 | 29631             | 0.86                 | 3.3E-02                                       | H02395.1                 | EST_HUMAN                     | yf28c09.r1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:127888 5'   |
| 4293                   | 14821                 | 27804             | 3.74                 | 3.3E-02                                       | AF110783.1               | NT                            | y84h02.r1 Soares placenta NbzHP Homo sapiens cDNA clone IMAGE:150771 5'  |
| 4589                   | 17726                 | 30709             | 2.24                 | 3.3E-02                                       | 6755862                  | NT                            | Homo sapiens skeletal muscle LM-protein 1 (FHIL1) gene, complete cds   |
| 6500                   | 19722                 | 33089             | 25.73                | 3.3E-02                                       | BF245905.1               | EST_HUMAN                     | Mus musculus tumor rejection antigen gp96 (Trt1), mRNA   |
| 6560                   | 19722                 | 33100             | 25.73                | 3.3E-02                                       | BF245905.1               | EST_HUMAN                     | 60183910F1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:4073787 5'   |
| 7677                   | 20742                 | 34223             | 0.83                 | 3.3E-02                                       | AF124162.1               | NT                            | 60183910F1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:4073787 5'   |
| 9523                   | 22586                 | 36157             | 0.74                 | 3.3E-02                                       | BF115621.1               | EST_HUMAN                     | Nicotiana plumbaginifolia molybdopterin synthase sulphuryase (mcs) gene, partial cds   |
| 9523                   | 22588                 | 36158             | 0.74                 | 3.3E-02                                       | BF115621.1               | EST_HUMAN                     | 7m82d04.x1 NCI_CGAP_Bm23 Homo sapiens cDNA clone IMAGE:3562423 3'  |

### Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 9824                   | 22879                 | 38248             | 0.67                 | 3.3E-02                                       | AA488202.1               | EST_HUMAN                     | ed08f09.s1 Soares_NHIFB Homo sapiens cDNA clone IMAGE:877673 3' similar to gb:U70844_cds1              |
|                        |                       |                   |                      |   |                          |                               | MYOBLAST CELL SURFACE ANTIGEN 24.1D5 (HUMAN);  |
| 9824                   | 22879                 | 38248             | 0.57                 | 3.3E-02                                       | AA488202.1               | EST_HUMAN                     | MYOBLAST CELL SURFACE ANTIGEN 24.1D5 (HUMAN);  |
| 11383                  | 24444                 | 38104             | 3.28                 | 3.3E-02                                       | BF691107.1               | EST_HUMAN                     | ed08f09.s1 Soares_NHIFB Homo sapiens cDNA clone IMAGE:877673 3' similar to gb:U70844_cds1              |
| 12428                  | 25303                 |                   | 3.1                  | 3.3E-02                                       | T96645.1                 | EST_HUMAN                     | MYOBLAST CELL SURFACE ANTIGEN 24.1D5 (HUMAN);  |
| 12567                  | 25378                 |                   | 1.6                  | 3.3E-02                                       | AF288865.1               | NT                            | 602247171F1 NIH_MGC_62 Homo sapiens cDNA clone IMAGE:4332487 5'  |
| 12591                  | 25388                 |                   | 1.85                 | 3.3E-02                                       | M81890.1                 | NT                            | ye48f11.1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:121101 5'                      |
| 134                    | 13360                 | 26394             | 1.79                 | 3.2E-02                                       | AJ002005.1               | NT                            | Mus musculus EIF4H gene, partial cds; LIMK1 gene, complete cds; and ELN gene, partial cds              |
| 1150                   | 14314                 | 27370             | 6.32                 | 3.2E-02                                       | AF098275.1               | NT                            | Human Interleukin 11 (IL-11) gene, complete mRNA   |
| 1150                   | 14314                 | 27371             | 6.32                 | 3.2E-02                                       | AF098275.1               | NT                            | Oryctolagus cuniculus gene encoding ileal sodium-dependent bile acid transporter                       |
| 1812                   | 14981                 | 28054             | 1.08                 | 3.2E-02                                       | AF128894.1               | NT                            | Oryctolagus cuniculus gene encoding ileal sodium-dependent bile acid transporter                       |
| 2187                   | 15322                 |                   | 1.08                 | 3.2E-02                                       | P28955                   | SWISSPROT                     | Drosophila melanogaster heat shock protein 68 (hsp68) gene, hsp68d allele, complete cds                |
| 2902                   | 13360                 | 26394             | 0.37                 | 3.2E-02                                       | AJ002005.1               | NT                            | Drosophila melanogaster heat shock protein 68 (hsp68) gene, hsp68d allele, complete cds                |
| 3204                   | 16379                 | 28389             | 18.21                | 3.2E-02                                       | BE867353.1               | EST_HUMAN                     | Drosophila melanogaster heat shock protein 68 (hsp68) gene, hsp68d allele, complete cds                |
| 3806                   | 16866                 | 28970             | 0.04                 | 3.2E-02                                       | AL163203.2               | NT                            | Homo sapiens telomerase reverse transcriptase (TERT) gene, exons 7-16 and complete cds                 |
| 4334                   | 17477                 |                   | 18.42                | 3.2E-02                                       | X94768.1                 | NT                            | LARGE TEGUMENT PROTEIN   |
|                        |                       |                   |                      |   |                          |                               | Oryctolagus cuniculus gene encoding ileal sodium-dependent bile acid transporter                       |
| 4890                   | 18020                 | 31005             | 3.85                 | 3.2E-02                                       | AF114182.1               | NT                            | 601442431F1 NIH_MGC_65 Homo sapiens cDNA clone IMAGE:3846727 5'  |
| 5310                   | 18427                 | 31397             | 0.93                 | 3.2E-02                                       | AW850159.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C003  |
| 5652                   | 18848                 | 32127             | 1.49                 | 3.2E-02                                       | X68708.1                 | NT                            | H. sapiens RP3 gene (XLRP gene 3)  |
| 5652                   | 18848                 | 32128             | 1.49                 | 3.2E-02                                       | X68709.1                 | NT                            | S. griseocarinum whiG-Stv gene   |
| 6853                   | 19812                 | 33200             | 2.4                  | 3.2E-02                                       | M32437.1                 | NT                            | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | Rat/polyomavirus left junction in cell line W80.14   |
|                        |                       |                   |                      |   |                          |                               | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | Alu repetitive element; contains LTR1 repetitive element;  |
| 6858                   | 19815                 |                   | 30.81                | 3.2E-02                                       | T88387.1                 | EST_HUMAN                     | Sagittaria nitida mullus (mullus) gene, chloroplast gene encoding chloroplast protein, partial cds     |
| 6743                   | 19889                 | 33280             | 3.7                  | 3.2E-02                                       | AF173945.1               | NT                            | IL3-CT0219-271089-022-004 CT0219 Homo sapiens cDNA   |
| 7639                   | 20989                 | 34498             | 0.82                 | 3.2E-02                                       | 11424049                 | NT                            | S. griseocarinum whiG-Stv gene   |
| 8496                   | 21577                 | 36113             | 8.04                 | 3.2E-02                                       | 6880565                  | NT                            | S. griseocarinum whiG-Stv gene   |
| 9141                   | 22220                 |                   | 0.67                 | 3.2E-02                                       | AF109718.1               | NT                            | Rat/polyomavirus left junction in cell line W80.14   |
| 9426                   | 22500                 | 38085             | 1.2                  | 3.2E-02                                       | AI278971.1               | EST_HUMAN                     | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
| 9426                   | 22500                 | 38086             | 1.2                  | 3.2E-02                                       | AI278971.1               | EST_HUMAN                     | Alu repetitive element; contains LTR1 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | Sagittaria nitida mullus (mullus) gene, chloroplast gene encoding chloroplast protein, partial cds     |
|                        |                       |                   |                      |   |                          |                               | IL3-CT0219-271089-022-004 CT0219 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | Rat/polyomavirus left junction in cell line W80.14   |
|                        |                       |                   |                      |   |                          |                               | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | Alu repetitive element; contains LTR1 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | Sagittaria nitida mullus (mullus) gene, chloroplast gene encoding chloroplast protein, partial cds     |
|                        |                       |                   |                      |   |                          |                               | IL3-CT0219-271089-022-004 CT0219 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | Rat/polyomavirus left junction in cell line W80.14   |
|                        |                       |                   |                      |   |                          |                               | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | Alu repetitive element; contains LTR1 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | Sagittaria nitida mullus (mullus) gene, chloroplast gene encoding chloroplast protein, partial cds     |
|                        |                       |                   |                      |   |                          |                               | IL3-CT0219-271089-022-004 CT0219 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | Rat/polyomavirus left junction in cell line W80.14   |
|                        |                       |                   |                      |   |                          |                               | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | Alu repetitive element; contains LTR1 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | Sagittaria nitida mullus (mullus) gene, chloroplast gene encoding chloroplast protein, partial cds     |
|                        |                       |                   |                      |   |                          |                               | IL3-CT0219-271089-022-004 CT0219 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | Rat/polyomavirus left junction in cell line W80.14   |
|                        |                       |                   |                      |   |                          |                               | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | Alu repetitive element; contains LTR1 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | Sagittaria nitida mullus (mullus) gene, chloroplast gene encoding chloroplast protein, partial cds     |
|                        |                       |                   |                      |   |                          |                               | IL3-CT0219-271089-022-004 CT0219 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | Rat/polyomavirus left junction in cell line W80.14   |
|                        |                       |                   |                      |   |                          |                               | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | Alu repetitive element; contains LTR1 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | Sagittaria nitida mullus (mullus) gene, chloroplast gene encoding chloroplast protein, partial cds     |
|                        |                       |                   |                      |   |                          |                               | IL3-CT0219-271089-022-004 CT0219 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | Rat/polyomavirus left junction in cell line W80.14   |
|                        |                       |                   |                      |   |                          |                               | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | Alu repetitive element; contains LTR1 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | Sagittaria nitida mullus (mullus) gene, chloroplast gene encoding chloroplast protein, partial cds     |
|                        |                       |                   |                      |   |                          |                               | IL3-CT0219-271089-022-004 CT0219 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | Rat/polyomavirus left junction in cell line W80.14   |
|                        |                       |                   |                      |   |                          |                               | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | Alu repetitive element; contains LTR1 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | Sagittaria nitida mullus (mullus) gene, chloroplast gene encoding chloroplast protein, partial cds     |
|                        |                       |                   |                      |   |                          |                               | IL3-CT0219-271089-022-004 CT0219 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | Rat/polyomavirus left junction in cell line W80.14   |
|                        |                       |                   |                      |   |                          |                               | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | Alu repetitive element; contains LTR1 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | Sagittaria nitida mullus (mullus) gene, chloroplast gene encoding chloroplast protein, partial cds     |
|                        |                       |                   |                      |   |                          |                               | IL3-CT0219-271089-022-004 CT0219 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | Rat/polyomavirus left junction in cell line W80.14   |
|                        |                       |                   |                      |   |                          |                               | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | Alu repetitive element; contains LTR1 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | Sagittaria nitida mullus (mullus) gene, chloroplast gene encoding chloroplast protein, partial cds     |
|                        |                       |                   |                      |   |                          |                               | IL3-CT0219-271089-022-004 CT0219 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | Rat/polyomavirus left junction in cell line W80.14   |
|                        |                       |                   |                      |   |                          |                               | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | Alu repetitive element; contains LTR1 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | Sagittaria nitida mullus (mullus) gene, chloroplast gene encoding chloroplast protein, partial cds     |
|                        |                       |                   |                      |   |                          |                               | IL3-CT0219-271089-022-004 CT0219 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | Rat/polyomavirus left junction in cell line W80.14   |
|                        |                       |                   |                      |   |                          |                               | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | Alu repetitive element; contains LTR1 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | Sagittaria nitida mullus (mullus) gene, chloroplast gene encoding chloroplast protein, partial cds     |
|                        |                       |                   |                      |   |                          |                               | IL3-CT0219-271089-022-004 CT0219 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | Rat/polyomavirus left junction in cell line W80.14   |
|                        |                       |                   |                      |   |                          |                               | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | Alu repetitive element; contains LTR1 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | Sagittaria nitida mullus (mullus) gene, chloroplast gene encoding chloroplast protein, partial cds     |
|                        |                       |                   |                      |   |                          |                               | IL3-CT0219-271089-022-004 CT0219 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | Rat/polyomavirus left junction in cell line W80.14   |
|                        |                       |                   |                      |   |                          |                               | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | Alu repetitive element; contains LTR1 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | Sagittaria nitida mullus (mullus) gene, chloroplast gene encoding chloroplast protein, partial cds     |
|                        |                       |                   |                      |   |                          |                               | IL3-CT0219-271089-022-004 CT0219 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | Rat/polyomavirus left junction in cell line W80.14   |
|                        |                       |                   |                      |   |                          |                               | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | Alu repetitive element; contains LTR1 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | Sagittaria nitida mullus (mullus) gene, chloroplast gene encoding chloroplast protein, partial cds     |
|                        |                       |                   |                      |   |                          |                               | IL3-CT0219-271089-022-004 CT0219 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | Rat/polyomavirus left junction in cell line W80.14   |
|                        |                       |                   |                      |   |                          |                               | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | Alu repetitive element; contains LTR1 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | Sagittaria nitida mullus (mullus) gene, chloroplast gene encoding chloroplast protein, partial cds     |
|                        |                       |                   |                      |   |                          |                               | IL3-CT0219-271089-022-004 CT0219 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | Rat/polyomavirus left junction in cell line W80.14   |
|                        |                       |                   |                      |   |                          |                               | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | Alu repetitive element; contains LTR1 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | Sagittaria nitida mullus (mullus) gene, chloroplast gene encoding chloroplast protein, partial cds     |
|                        |                       |                   |                      |   |                          |                               | IL3-CT0219-271089-022-004 CT0219 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | Rat/polyomavirus left junction in cell line W80.14   |
|                        |                       |                   |                      |   |                          |                               | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | Alu repetitive element; contains LTR1 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | Sagittaria nitida mullus (mullus) gene, chloroplast gene encoding chloroplast protein, partial cds     |
|                        |                       |                   |                      |   |                          |                               | IL3-CT0219-271089-022-004 CT0219 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | Rat/polyomavirus left junction in cell line W80.14   |
|                        |                       |                   |                      |   |                          |                               | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | Alu repetitive element; contains LTR1 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | Sagittaria nitida mullus (mullus) gene, chloroplast gene encoding chloroplast protein, partial cds     |
|                        |                       |                   |                      |   |                          |                               | IL3-CT0219-271089-022-004 CT0219 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | Rat/polyomavirus left junction in cell line W80.14   |
|                        |                       |                   |                      |   |                          |                               | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | Alu repetitive element; contains LTR1 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | Sagittaria nitida mullus (mullus) gene, chloroplast gene encoding chloroplast protein, partial cds     |
|                        |                       |                   |                      |   |                          |                               | IL3-CT0219-271089-022-004 CT0219 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | Rat/polyomavirus left junction in cell line W80.14   |
|                        |                       |                   |                      |   |                          |                               | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | Alu repetitive element; contains LTR1 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | Sagittaria nitida mullus (mullus) gene, chloroplast gene encoding chloroplast protein, partial cds     |
|                        |                       |                   |                      |   |                          |                               | IL3-CT0219-271089-022-004 CT0219 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | Rat/polyomavirus left junction in cell line W80.14   |
|                        |                       |                   |                      |   |                          |                               | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | Alu repetitive element; contains LTR1 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | Sagittaria nitida mullus (mullus) gene, chloroplast gene encoding chloroplast protein, partial cds     |
|                        |                       |                   |                      |   |                          |                               | IL3-CT0219-271089-022-004 CT0219 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | Rat/polyomavirus left junction in cell line W80.14   |
|                        |                       |                   |                      |   |                          |                               | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | Alu repetitive element; contains LTR1 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | Sagittaria nitida mullus (mullus) gene, chloroplast gene encoding chloroplast protein, partial cds     |
|                        |                       |                   |                      |   |                          |                               | IL3-CT0219-271089-022-004 CT0219 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | S. griseocarinum whiG-Stv gene   |
|                        |                       |                   |                      |   |                          |                               | Rat/polyomavirus left junction in cell line W80.14   |
|                        |                       |                   |                      |   |                          |                               | y433h12.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:110087 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | Alu repetitive element   |

Page 157 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 1289                   | 14446                 |                   | 1.92                 | 3.1E-02                                       | 4503418                  | NT                            | Homo sapiens dual specificity phosphatase 4 (DUSP4) mRNA   |
| 1333                   | 14490                 | 27569             | 1.48                 | 3.1E-02                                       | P18945                   | SWISSPROT                     | NEURONAL ACETYLCHOLINE RECEPTOR PROTEIN, ALPHA-3 CHAIN PRECURSOR (GF-ALPHA-3)  |
| 1940                   | 15083                 | 28184             | 1.28                 | 3.1E-02                                       | 6871664                  | NT                            | Mus musculus adaptor-related protein complex AP-3, delta subunit (Ap3d), mRNA  |
| 5378                   | 18380                 | 31449             | 1.28                 | 3.1E-02                                       | U78104.1                 | NT                            | Human leukemia inhibitory factor receptor (LIFR) gene, promoter and partial exon 1   |
| 5478                   | 18376                 |                   | 2.6                  | 3.1E-02                                       | AA278478.1               | EST_HUMAN                     | z81a08.l1 NCI_CGAP_G0281 Homo sapiens cDNA clone IMAGE:703858 5'   |
| 5764                   | 18568                 | 32259             | 0.77                 | 3.1E-02                                       | BF68742.1                | EST_HUMAN                     | 602066783F1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:4066789 5'  |
| 8122                   | 21204                 |                   | 0.68                 | 3.1E-02                                       | AV69098.1                | EST_HUMAN                     | AV69098 GKC Homo sapiens cDNA clone GKCAVH09 5'  |
| 8142                   | 22221                 | 35764             | 0.48                 | 3.1E-02                                       | BE66082.2                | EST_HUMAN                     | 601658878R1 NIH_MGC_69 Homo sapiens cDNA clone IMAGE:3886281 3'  |
| 8339                   | 22415                 | 35968             | 0.48                 | 3.1E-02                                       | AB72302.1                | EST_HUMAN                     | wn57d09.x1 NCI_CGAP_U12 Homo sapiens cDNA clone IMAGE:2440049 3'   |
| 10237                  | 23272                 | 36884             | 2.67                 | 3.1E-02                                       | AF034778.1               | NT                            | Enterococcus faecalis surface protein precursor, gene, complete cds  |
| 1852                   | 14905                 |                   | 2.41                 | 3.0E-02                                       | AF187125.1               | NT                            | Plyoktines minivirus cytochrome oxidase I gene, partial cds; mitochondrial gene for mitochondrial product                                |
| 2652                   | 15775                 | 28889             | 1.08                 | 3.0E-02                                       | AA402242.1               | EST_HUMAN                     | z65h03.r1 Soares testis_NHT Homo sapiens cDNA clone IMAGE:727253 5'  |
| 3743                   | 16904                 | 28808             | 2.82                 | 3.0E-02                                       | AF247844.1               | NT                            | Pseudomonas fluorescens family II aminotransferase gene, complete cds  |
| 3839                   | 16998                 |                   | 0.93                 | 3.0E-02                                       | AW820223.1               | EST_HUMAN                     | QV2-ST0288-150200-040-909 ST0288 Homo sapiens cDNA   |
| 4058                   | 17214                 |                   | 0.94                 | 3.0E-02                                       | AA384003.1               | EST_HUMAN                     | EST74530 Pituitary gland II Homo sapiens cDNA 5' end   |
| 5164                   | 18288                 | 31260             | 8.17                 | 3.0E-02                                       | AF281074.1               | NT                            | Homo sapiens neuropilin 2 (NRP2) gene, complete cds, alternatively spliced   |
| 5164                   | 18288                 | 31251             | 8.17                 | 3.0E-02                                       | AF281074.1               | NT                            | Homo sapiens neuropilin 2 (NRP2) gene, complete cds, alternatively spliced   |
| 5507                   | 18706                 |                   | 3.21                 | 3.0E-02                                       | AB046783.1               | NT                            | Homo sapiens mRNA for KIAA1573 protein, partial cds  |
| 6384                   | 19553                 | 32910             | 0.57                 | 3.0E-02                                       | N98615.1                 | EST_HUMAN                     | z838a10.r1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:294908 5' similar to contains element TAR1 repetitive element ; |
| 6384                   | 19553                 | 32911             | 0.57                 | 3.0E-02                                       | N98615.1                 | EST_HUMAN                     | z838a10.r1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:294908 5' similar to contains element TAR1 repetitive element ; |
| 6829                   | 20244                 | 33677             | 2.87                 | 3.0E-02                                       | AJ242806.1               | NT                            | Cyprinus carpio mRNA for inducible nitric oxide synthase (iNOS gene)   |
| 7047                   | 20100                 | 33516             | 2.9                  | 3.0E-02                                       | BE889948.1               | EST_HUMAN                     | 601512206F1 NIH_MGC_71 Homo sapiens cDNA clone IMAGE:3913848 5'  |
| 7047                   | 20100                 | 33517             | 2.9                  | 3.0E-02                                       | BE889948.1               | EST_HUMAN                     | 601512206F1 NIH_MGC_71 Homo sapiens cDNA clone IMAGE:3913848 5'  |
| 7218                   | 20083                 | 33497             | 1.92                 | 3.0E-02                                       | AF213884.1               | NT                            | Homo sapiens nuclear factor of kappa light polypeptide gene enhancer in B-cells 1 (NFKB1) gene, complete cds                             |
| 7218                   | 20083                 | 33498             | 1.92                 | 3.0E-02                                       | AF213884.1               | NT                            | Homo sapiens nuclear factor of kappa light polypeptide gene enhancer in B-cells 1 (NFKB1) gene, complete cds                             |
| 7380                   | 20456                 | 33921             | 1.22                 | 3.0E-02                                       | M86524.1                 | NT                            | Human dystrophin gene  |
| 8317                   | 21369                 |                   | 0.48                 | 3.0E-02                                       | BF079706.1               | EST_HUMAN                     | 602154364F1 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:4286854 5'  |
| 8821                   | 21900                 | 35439             | 0.55                 | 3.0E-02                                       | BE512670.1               | EST_HUMAN                     | 601171628F1 NIH_MGC_15 Homo sapiens cDNA clone IMAGE:3545047 5'  |
| 8842                   | 21921                 | 35459             | 0.74                 | 3.0E-02                                       | BF353889.1               | EST_HUMAN                     | IL5-HTT0704-290800-108-c04 HTT0704 Homo sapiens cDNA   |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 8893                   | 22072                 |                   | 1.93                 | 3.0E-02                                       | AF275654.1               | NT                            | Omlorhynchus anatinus coagulation factor X mRNA, complete cds  |
| 10677                  | 23711                 | 37319             | 2.03                 | 3.0E-02                                       | AE001787.1               | NT                            | Thermobia maritima section 109 of 198 of the complete genome   |
| 10770                  | 23803                 | 37426             | 0.47                 | 3.0E-02                                       | Z31211.1                 | EST_HUMAN                     | HSAADTHS TEST1, Human adult Testis tissue Homo sapiens cDNA clone cam test244 (b)                                      |
| 11508                  | 24558                 | 38243             | 2.28                 | 3.0E-02                                       | M81367.1                 | NT                            | Human coagulation factor VII (F7) gene exon 1 and factor X (F10) gene, exon 1  |
| 11889                  | 24874                 | 38678             | 7.11                 | 3.0E-02                                       | AA483218.1               | EST_HUMAN                     | ne87804.s1 NC1 CGAP K181 Homo sapiens cDNA clone IMAGE:911263  |
| 12538                  | 26168                 | 31556             | 1.95                 | 3.0E-02                                       | R32018.1                 | EST_HUMAN                     | y163304.s1 Scores placenta Nb2HP Homo sapiens cDNA clone IMAGE:134407 3'   |
| 12943                  | 25821                 |                   | 11.62                | 3.0E-02                                       | AW865566.1               | EST_HUMAN                     | QV4-NIN038-270400-187-h08 NN0038 Homo sapiens cDNA   |
| 12989                  | 26161                 |                   | 4.97                 | 3.0E-02                                       | AF049887.1               | NT                            | Rattus norvegicus UDP-Gal:glucosylceramide beta-1,4-galactosyltransferase mRNA, complete cds                           |
| 3050                   | 16813                 | 28826             | 0.9                  | 2.9E-02                                       | X55284.1                 | NT                            | Sheep gene for ultra high-sulphur keratin protein  |
| 4039                   | 17195                 | 30206             | 0.81                 | 2.8E-02                                       | H72805.1                 | EST_HUMAN                     | y007610.r1 Scores fetal liver spleen 1N1FLS Homo sapiens cDNA clone IMAGE:233130 5'                                    |
| 6188                   | 19364                 | 32712             | 1.39                 | 2.9E-02                                       | AF060271.1               | NT                            | Sus scrofa deoxyribonuclease II mRNA, complete cds   |
| 6421                   | 19590                 | 32855             | 8.58                 | 2.9E-02                                       | BF032233.1               | EST_HUMAN                     | 601432681F1 NIH_MGC_68 Homo sapiens cDNA clone IMAGE:3856588 5'  |
| 7398                   | 20478                 | 33943             | 9.95                 | 2.9E-02                                       | BE271437.1               | EST_HUMAN                     | 601140728F1 NIH_MGC_9 Homo sapiens cDNA clone IMAGE:3049830 5'   |
| 7584                   | 20558                 | 34133             | 0.65                 | 2.9E-02                                       | D28214.1                 | EST_HUMAN                     | HUMNK262 Human epidermal keratinocyte Homo sapiens cDNA clone 282  |
| 8187                   | 21269                 | 34783             | 0.82                 | 2.9E-02                                       | AF128278.1               | NT                            | Buchnera aphidicola natural-host Schlechtendalla chinensis glucanate-6-phosphate dehydrogenase (gnd) gene, partial cds |
| 8187                   | 21268                 | 34784             | 0.82                 | 2.9E-02                                       | AF128278.1               | NT                            | Buchnera aphidicola natural-host Schlechtendalla chinensis glucanate-6-phosphate dehydrogenase (gnd) gene, partial cds |
| 8959                   | 22899                 | 35482             | 2.14                 | 2.9E-02                                       | AW876979.1               | EST_HUMAN                     | CM3-PT0014-071289-051-c04 PT0014 Homo sapiens cDNA   |
| 8959                   | 22899                 | 35483             | 2.14                 | 2.9E-02                                       | AW876979.1               | EST_HUMAN                     | CM3-PT0014-071289-051-c04 PT0014 Homo sapiens cDNA   |
| 10078                  | 23116                 |                   | 0.65                 | 2.9E-02                                       | AW976597.1               | EST_HUMAN                     | EST388706 MAGE resequences, MAGN Homo sapiens cDNA   |
| 10553                  | 23588                 | 37106             | 1.25                 | 2.9E-02                                       | AP000084.1               | NT                            | Aeropyrum pernix genomic DNA, section 777  |
| 11303                  | 16813                 | 29826             | 1.44                 | 2.9E-02                                       | X66284.1                 | NT                            | Sheep gene for ultra high-sulphur keratin protein  |
| 12538                  | 26057                 |                   | 1.35                 | 2.9E-02                                       | AU135817.1               | EST_HUMAN                     | AU135817 PLACE1 Homo sapiens cDNA clone PLACE1002982 5'  |
| 579                    | 13771                 |                   | 0.76                 | 2.8E-02                                       | AW970183.1               | EST_HUMAN                     | EST382234 MAGE resequences, MAGK Homo sapiens cDNA   |
| 3453                   | 16620                 | 29639             | 1.2                  | 2.8E-02                                       | AF068063.1               | NT                            | Homo sapiens retinal fasciclin (FSCN2) gene, exon 2  |
| 3453                   | 16620                 | 29640             | 1.2                  | 2.8E-02                                       | AF068063.1               | NT                            | Homo sapiens retinal fasciclin (FSCN2) gene, exon 2  |
| 4430                   | 17570                 |                   | 0.76                 | 2.8E-02                                       | 8393761                  | NT                            | Rattus norvegicus microtubule-associated protein tau (Mapt), mRNA  |
| 5905                   | 18800                 | 31886             | 11                   | 2.8E-02                                       | BE741083.1               | EST_HUMAN                     | 601594078F1 NIH_MGC_9 Homo sapiens cDNA clone IMAGE:3948087 5'   |
| 6948                   | 20261                 | 33689             | 1.08                 | 2.8E-02                                       | T78680.1                 | EST_HUMAN                     | y021608.r1 Scores fetal liver spleen 1N1FLS Homo sapiens cDNA clone IMAGE:108855 5'                                    |
| 8523                   | 21604                 | 35142             | 1.67                 | 2.8E-02                                       | AJ005820.1               | NT                            | Ornithostigma plantaginum mRNA for homeodomain leucine zipper protein (hb-1)   |
| 8219                   | 22297                 | 35940             | 0.76                 | 2.8E-02                                       | AA280762.1               | EST_HUMAN                     | zs96c08.r1 NC1 CGAP_GCB1 Homo sapiens cDNA clone IMAGE:711486 5'   |
| 9409                   | 22493                 | 36047             | 1.41                 | 2.8E-02                                       | AF187872.1               | NT                            | Cavia porcellus inwardly-rectifying potassium channel Kir2.1 (KCNJ2) gene, complete cds                                |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 9513                   | 22578                 | 36144             | 0.76                 | 2.8E-02                                       | AE001082.1               | NT                            | Archaeoglobus fulgidus section 15 of 172 of the complete genome   |
| 9574                   | 22636                 | 36207             | 0.47                 | 2.8E-02                                       | J05109.1                 | NT                            | T.thermophila calcium-binding 25 kDa (TCBP 25) protein gene, complete cds   |
| 9574                   | 22636                 | 36208             | 0.47                 | 2.8E-02                                       | J05109.1                 | NT                            | T.thermophila calcium-binding 25 kDa (TCBP 25) protein gene, complete cds   |
|                        |                       |                   |                      |   |                          |                               | Human germ-line T-cell receptor beta chain Dopamine-beta-hydroxylase-like, TRY1, TRY2, TRY3,<br>TCRBV27S1P, TCRBV22S1A2N1T, TCRBV6S1A1T, TCRBV7S1A1N2T, TCRBV6S1A1T, TCRBV13SS,<br>TCRBV6S7P, TCRBV7S3A2T, TCRBV13S2A1T, TCRBV6S2A2PT, TCRBV7S2A1N4T,<br>TCRBV13S913S2> |
| 1518                   | 14671                 | 27753             | 0.96                 | 2.7E-02                                       | U66059.1                 | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 6  |
| 3518                   | 16684                 | 29695             | 1.99                 | 2.7E-02                                       | AL161494.2               | NT                            | Y96H12.1 Soares_multiple_sclerosis_2NbHMSP Homo sapiens cDNA clone IMAGE:280487 5'  |
| 4319                   | 17462                 | 30447             | 1.93                 | 2.7E-02                                       | N47258.1                 | EST_HUMAN                     | Y96H12.1 Soares_multiple_sclerosis_2NbHMSP Homo sapiens cDNA clone IMAGE:280487 5'  |
| 4319                   | 17462                 | 30448             | 1.93                 | 2.7E-02                                       | N47258.1                 | EST_HUMAN                     | Y96H12.1 Soares_multiple_sclerosis_2NbHMSP Homo sapiens cDNA clone IMAGE:280487 5'  |
| 5362                   | 18555                 | 31432             | 0.6                  | 2.7E-02                                       | BF245672.1               | EST_HUMAN                     | 601864811F1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:4083075 5'   |
| 5557                   | 18755                 | 31793             | 1.43                 | 2.7E-02                                       | R12245.1                 | EST_HUMAN                     | Y93309.1 Soares fetal liver spleen 1NLS Homo sapiens cDNA clone IMAGE:128657 5' similar to<br>SF-JC2264 JC2264 TISSUE FACTOR PATHWAY INHIBITOR - RHESUS ;   |
| 6022                   | 18205                 | 32525             | 0.69                 | 2.7E-02                                       | X61670.1                 | NT                            | T.aestivum pTTH20 mRNA for wheat type V thionin   |
| 6734                   | 19690                 |                   | 1.02                 | 2.7E-02                                       | X97660.1                 | NT                            | A.bisporus pgIA gene  |
| 7213                   | 20078                 | 33491             | 1.92                 | 2.7E-02                                       | AA963571.1               | EST_HUMAN                     | cd86h03.s1 Soares_total_fetus_Nb2HF8_9w Homo sapiens cDNA clone IMAGE:1624681 3'  |
| 8549                   | 21630                 |                   | 1.36                 | 2.7E-02                                       | A977036.1                | EST_HUMAN                     | cd86h03.s1 Soares_total_fetus_Nb2HF8_9w Homo sapiens cDNA clone IMAGE:2065982 3' similar to<br>contains Alu repetitive element;   |
| 8516                   | 21805                 | 35434             | 0.55                 | 2.7E-02                                       | S43442.1                 | NT                            | transmembrane secretory component [human, leukocytes, Genomic, 657 nt, segment 4 of 11]   |
| 895                    | 13776                 | 26796             | 2.62                 | 2.6E-02                                       | AL163282.2               | NT                            | Homo sapiens chromosome 21 segment HS21C082   |
| 1399                   | 14553                 |                   | 0.99                 | 2.6E-02                                       | AW650516.1               | EST_HUMAN                     | IL3-CT0219-280100-062-C08 CT0219 Homo sapiens cDNA  |
| 2439                   | 15567                 | 26694             | 2.6                  | 2.6E-02                                       | AA460021.1               | EST_HUMAN                     | eb02b02.s1 Stratagene fetal retina 037202 Homo sapiens cDNA clone IMAGE:839586 3'   |
| 2441                   | 15569                 | 26696             | 4.45                 | 2.6E-02                                       |                          | NT                            | Mus musculus Histidine rich calcium binding protein (Hir), mRNA   |
| 2441                   | 15569                 | 26697             | 4.45                 | 2.6E-02                                       | 6754241                  | NT                            | Mus musculus histidine rich calcium binding protein (Hir), mRNA   |
|                        |                       |                   |                      |   | 6754241                  | NT                            | Mus musculus MHC class III region RD gene, partial cds; Bf, C2, G9A, NG22, C6, HSP70, HSP70, HSC70,<br>and snRNP genes, complete cds; G7A gene, partial cds; and unknown genes  |
| 2982                   | 16158                 |                   | 2.07                 | 2.6E-02                                       | AF108906.1               | NT                            | Chicken dorsalin-1 mRNA, complete cds   |
| 5025                   | 16184                 | 31131             | 3.99                 | 2.6E-02                                       | L12032.1                 | NT                            | Dinococcus radiodurans R1 section 151 of 229 of the complete chromosome 1   |
| 5176                   | 18298                 | 31261             | 1.22                 | 2.6E-02                                       | AE002014.1               | NT                            | xe52504.x1 NCI_CGAP_Ser4 Homo sapiens cDNA clone IMAGE:2670383 3' similar to SW:Y069_HUMAN<br>Q15041 HYPOTHETICAL PROTEIN KIAA0069 ;  |
| 5203                   | 18324                 | 31263             | 2.54                 | 2.6E-02                                       | AW241154.1               | EST_HUMAN                     | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 63   |
| 6011                   | 19195                 |                   | 2.94                 | 2.6E-02                                       | AL161683.2               | NT                            | gg27H11.x1 NCI_CGAP_Kid3 Homo sapiens cDNA clone IMAGE:1762317 3'   |
| 6349                   | 18519                 |                   | 6.95                 | 2.6E-02                                       | AL206030.1               | EST_HUMAN                     | 601493473T1 NIH_MGC_70 Homo sapiens cDNA clone IMAGE:3895678 3'   |
| 6555                   | 19717                 | 33093             | 2                    | 2.6E-02                                       | BE521748.1               | EST_HUMAN                     | Vaccinia virus ORF1L, strain Wyeth  |
| 6569                   | 20194                 | 33619             | 0.53                 | 2.6E-02                                       | Z39064.1                 | NT                            |   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 6866                   | 20194                 | 33620             | 0.83                 | 2.6E-02                                       | Z89064.1                 | NT                            | Vaccinia virus ORF1L, strain Wyeth  |
| 7050                   | 20103                 | 33520             | 5.63                 | 2.6E-02                                       | 6981271                  | NT                            | Rattus norvegicus Nerve growth factor receptor, fast (Ngfr), mRNA   |
| 7449                   | 20320                 | 33998             | 0.65                 | 2.6E-02                                       | P21894                   | SWISSPROT                     | ALANYL-TRNA SYNTHETASE (ALANINE-TRNA LIGASE) (ALARS)  |
| 8703                   | 21783                 | 35316             | 0.73                 | 2.6E-02                                       | AA860946.1               | EST_HUMAN                     | al22604.s1 Soares_NHT Homo sapiens cDNA clone IMAGE:1406719 3'  |
| 9560                   | 22702                 | 36268             | 1.24                 | 2.6E-02                                       | 11432020                 | NT                            | Homo sapiens KIAA1070 protein (KIAA1070), mRNA  |
| 9915                   | 22955                 | 36841             | 0.78                 | 2.6E-02                                       | AF114952.1               | NT                            | Saccharomyces dairenensis NRRL Y-12639(T) ATP synthase subunit 9 (ATP9) gene, mitochondrial gene encoding mitochondrial protein, complete cds |
| 9915                   | 22955                 | 36842             | 0.78                 | 2.6E-02                                       | AF114952.1               | NT                            | Saccharomyces dairenensis NRRL Y-12639(T) ATP synthase subunit 9 (ATP9) gene, mitochondrial gene encoding mitochondrial protein, complete cds |
| 10814                  | 23648                 | 37257             | 5.37                 | 2.6E-02                                       | AL163303.2               | NT                            | Homo sapiens chromosome 21 segment HS21C103   |
| 11670                  | 24747                 | 38547             | 1.59                 | 2.6E-02                                       | AA279351.1               | EST_HUMAN                     | zs84402.11 NCI_CGAP GC81 Homo sapiens cDNA clone IMAGE:704182 5'  |
| 11681                  | 24849                 | 38547             | 1.35                 | 2.6E-02                                       | AW500547.1               | EST_HUMAN                     | UHF-BND-ak-e-10-0-UL1 NIH_MGC 50 Homo sapiens cDNA clone IMAGE:3077488 5'   |
| 12490                  | 26150                 | 31553             | 1.48                 | 2.6E-02                                       | BF343827.1               | EST_HUMAN                     | 602015501F1 NCI_CGAP_Bm84 Homo sapiens cDNA clone IMAGE:4160944 5'  |
| 12583                  | 26392                 |                   | 1.32                 | 2.6E-02                                       | 11422838                 | NT                            | Homo sapiens hypothetical protein FLJ10724 (FLJ10724), mRNA   |
| 12947                  | 25658                 |                   | 1.39                 | 2.6E-02                                       | R43678.1                 | EST_HUMAN                     | yo8807.a1 Soares infant brain 1N1B Homo sapiens cDNA clone IMAGE:22845 3' similar to contains DBR repetitive element:                         |
| 545                    | 13738                 | 26762             | 1.75                 | 2.5E-02                                       | AI783130.1               | EST_HUMAN                     | on26106.y5 NCI_CGAP_Lu5 Homo sapiens cDNA clone IMAGE:1557827 5'  |
| 645                    | 13738                 | 26763             | 1.75                 | 2.5E-02                                       | AI783130.1               | EST_HUMAN                     | on26106.y5 NCI_CGAP_Lu5 Homo sapiens cDNA clone IMAGE:1557827 5'  |
| 832                    | 14010                 | 27068             | 9.54                 | 2.6E-02                                       | BE974314.1               | EST_HUMAN                     | 601680305R2 NIH_MGC 83 Homo sapiens cDNA clone IMAGE:3950685 3'   |
| 892                    | 14088                 | 27133             | 5.83                 | 2.5E-02                                       | BE974314.1               | EST_HUMAN                     | 601680305R2 NIH_MGC 83 Homo sapiens cDNA clone IMAGE:3950685 3'   |
| 2821                   | 15935                 |                   | 2.53                 | 2.5E-02                                       | U12671.1                 | NT                            | Rattus norvegicus ribophyllin-3A mRNA, complete cds   |
| 3021                   | 16197                 | 29210             | 2.05                 | 2.5E-02                                       | X93697.1                 | NT                            | H. carterae mRNA for fucosanthin chlorophyll a/c binding protein, Fcp1  |
| 3021                   | 16197                 | 29220             | 2.95                 | 2.5E-02                                       | X93697.1                 | NT                            | H. carterae mRNA for fucosanthin chlorophyll a/c binding protein, Fcp1  |
| 4156                   | 18468                 | 30302             | 0.92                 | 2.6E-02                                       | BE701165.1               | EST_HUMAN                     | PM2-NN0128-080700-001-e12 NN0128 Homo sapiens cDNA  |
| 4156                   | 18468                 | 30303             | 0.92                 | 2.5E-02                                       | BE701165.1               | EST_HUMAN                     | PM2-NN0128-080700-001-e12 NN0128 Homo sapiens cDNA  |
| 4322                   | 17495                 | 30450             | 4.66                 | 2.6E-02                                       | AW582144.1               | EST_HUMAN                     | hr36108.x1 Soares_NFL_T GBC S1 Homo sapiens cDNA clone IMAGE:2834015 3'   |
| 5630                   | 19021                 | 32327             | 0.72                 | 2.5E-02                                       | AI732776.1               | EST_HUMAN                     | z685o10.x6 Soares ovary tumor NBH0T Homo sapiens cDNA clone IMAGE:810354 3'   |
| 6322                   | 19494                 |                   | 4.88                 | 2.5E-02                                       | BE670128.1               | EST_HUMAN                     | 7630e09.x1 NCI_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3284008 3' similar to contains L1.1 L1 repetitive element:                             |
| 6338                   | 19508                 |                   | 3.72                 | 2.5E-02                                       | BE746888.1               | EST_HUMAN                     | 601579393F1 NIH_MGC 9 Homo sapiens cDNA clone IMAGE:3628064 5'  |
| 6468                   | 19633                 | 32984             | 0.8                  | 2.5E-02                                       | L28029.1                 | NT                            | Chlamydomonas reinhardtii VSP-3 mRNA, complete cds  |
| 7843                   | 20898                 | 34400             | 1.72                 | 2.5E-02                                       | BF526722.1               | EST_HUMAN                     | 602070562F1 NCI_CGAP_Bm84 Homo sapiens cDNA clone IMAGE:4213408 5'  |
| 7843                   | 20898                 | 34401             | 1.72                 | 2.5E-02                                       | BF526722.1               | EST_HUMAN                     | 602070562F1 NCI_CGAP_Bm84 Homo sapiens cDNA clone IMAGE:4213408 5'  |
| 8008                   | 21058                 | 34570             | 0.84                 | 2.5E-02                                       | AF129458.1               | NT                            | Chlamydomonas reinhardtii class II DNA photolyase (PHR2) gene, complete cds   |

Page 161 of 550  
Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 8167                   | 21249                 | 34788             | 0.6                  | 2.5E-02                                       | BE282468.1               | EST_HUMAN                     | 601108201F1 NIH_MGC_16 Homo sapiens cDNA clone IMAGE:3344278 5'  |
| 9025                   | 22104                 | 36845             | 0.92                 | 2.5E-02                                       | Q91713                   | SWISSPROT                     | CHORDIN PRECURSOR (ORGANIZER-SPECIFIC SECRETED DORSALIZING FACTOR)   |
| 9184                   | 22242                 | 35785             | 0.57                 | 2.5E-02                                       | AW025821.1               | EST_HUMAN                     | wu08c10.x1 NC1_CGAP_GC8 Homo sapiens cDNA clone IMAGE:2616370 3'   |
| 10271                  | 23306                 |                   | 0.63                 | 2.5E-02                                       | X71303.1                 | NT                            | D.radicum 28S ribosomal RNA, D2 domain   |
| 10810                  | 23843                 | 37486             | 0.65                 | 2.5E-02                                       | A147615.1                | EST_HUMAN                     | qb22a08.x1 Soares_pregnant_uterus_NH-IPU Homo sapiens cDNA clone IMAGE:1668882 3'  |
| 11048                  | 24125                 | 37759             | 1.71                 | 2.5E-02                                       | Q10335                   | SWISSPROT                     | HYPOTHETICAL 46.7 KD PROTEIN C19G10.05 IN CHROMOSOME 1   |
| 11048                  | 24125                 | 37780             | 1.71                 | 2.5E-02                                       | Q10335                   | SWISSPROT                     | HYPOTHETICAL 46.7 KD PROTEIN C19G10.05 IN CHROMOSOME 1   |
|                        |                       |                   |                      |   |                          |                               | Mus musculus major histocompatibility locus class II region: major histocompatibility protein class II alpha chain (A1alpha) and major histocompatibility protein class II beta chain (I1beta) genes, complete cds; butyrophilin-like (NG9), butyrophilin-1p |
| 11120                  | 24192                 |                   | 2.93                 | 2.5E-02                                       | AF050157.1               | NT                            | Homo sapiens gene for LECT2, complete cds  |
| 12065                  | 25046                 |                   | 1.87                 | 2.5E-02                                       | AB007546.1               | NT                            | Homo sapiens similar to ALEX3 protein (H. sapiens) (LOC83634), mRNA  |
| 12419                  | 26072                 |                   | 2.17                 | 2.6E-02                                       | 11420078                 | NT                            | Homo sapiens mitogen-activated protein kinase kinase 13 (MAP3K13), mRNA  |
| 12621                  | 25934                 |                   | 1.28                 | 2.5E-02                                       | 11439220                 | NT                            | Dicotyledon discoidium putative protein kinase MlkaA (mlkaA), complete cds   |
| 12716                  | 25476                 |                   | 1.83                 | 2.5E-02                                       | U60188.1                 | NT                            | 601652365R2 NIH_MGC_82 Homo sapiens cDNA clone IMAGE:3935513 3'  |
| 12760                  | 25497                 | 32032             | 1.98                 | 2.5E-02                                       | BE973327.1               | EST_HUMAN                     | bt72c07.x1 Soares_fetal_liver spleen_1NFLS Homo sapiens cDNA clone IMAGE:2070156 3'  |
| 178                    | 13401                 | 26431             | 1.44                 | 2.4E-02                                       | A1378582.1               | EST_HUMAN                     | yt75f11.f1 Soares_fetal_liver spleen_1NFLS Homo sapiens cDNA clone IMAGE:211149 5'   |
| 1628                   | 14780                 | 27865             | 1.89                 | 2.4E-02                                       | H65894.1                 | EST_HUMAN                     | H-2 CLASS I HISTOCOMPATIBILITY ANTIGEN, K-B ALPHA CHAIN PRECURSOR (H-2K(B))  |
| 2102                   | 16054                 | 28363             | 1.38                 | 2.4E-02                                       | P01901                   | SWISSPROT                     | H-2 CLASS I HISTOCOMPATIBILITY ANTIGEN, K-B ALPHA CHAIN PRECURSOR (H-2K(B))  |
| 2102                   | 16054                 | 28384             | 1.38                 | 2.4E-02                                       | P01901                   | SWISSPROT                     | H-2 CLASS I HISTOCOMPATIBILITY ANTIGEN, K-B ALPHA CHAIN PRECURSOR (H-2K(B))  |
| 4488                   | 17628                 | 30609             | 1.89                 | 2.4E-02                                       | J06110.1                 | NT                            | T.Hamphilia calcium-binding 28 kDa (TCBP 28) protein mRNA, complete cds  |
| 6344                   | 19514                 | 32871             | 0.86                 | 2.4E-02                                       | W86680.1                 | EST_HUMAN                     | zf63h04.s1 Soares_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:416791 3'  |
| 7370                   | 20449                 | 33912             | 1.2                  | 2.4E-02                                       | Z0573.1                  | EST_HUMAN                     | HSAACGVX T, Human adult Rhabdomyosarcoma cell-line Homo sapiens cDNA   |
| 7388                   | 20464                 | 33928             | 1.11                 | 2.4E-02                                       | X12925.1                 | NT                            | Rat gene for uncoupling protein (UCP)  |
| 7388                   | 20464                 | 33929             | 1.11                 | 2.4E-02                                       | X12925.1                 | NT                            | Rat gene for uncoupling protein (UCP)  |
| 8074                   | 21156                 |                   | 0.75                 | 2.4E-02                                       | AW819007.1               | EST_HUMAN                     | RC3-ST0196-230300-019-H06 ST0186 Homo sapiens cDNA   |
| 8129                   | 21211                 |                   | 0.57                 | 2.4E-02                                       | M16780.1                 | NT                            | Human retrotransposon 3' long terminal repeat  |
| 8636                   | 21716                 |                   | 0.57                 | 2.4E-02                                       | H78376.1                 | EST_HUMAN                     | yt12c05.s1 Soares_fetal_liver spleen_1NFLS Homo sapiens cDNA clone IMAGE:233876 3' similar to contains Alu repetitive element; contains A3R repetitive element;  |
| 8726                   | 21808                 | 35344             | 11.89                | 2.4E-02                                       | N69442.1                 | EST_HUMAN                     | z335g11.s1 Soares_fetal_liver spleen_1NFLS Homo sapiens cDNA clone IMAGE:284598 3' similar to gb K02909 RATSR7K Rat (RNA); contains A3R.b1 A3R repetitive element;   |
| 9187                   | 22285                 | 35808             | 0.78                 | 2.4E-02                                       | AE001125.1               | NT                            | Borrelia burgdorferi (section 11 of 70) of the complete genome   |
|                        |                       |                   |                      |   |                          |                               | zu91c06.s1 Soares_leslie_NHT Homo sapiens cDNA clone IMAGE:745354 3' similar to gb J04422 ISLET AMYLOID POLYPEPTIDE PRECURSOR (HUMAN); contains Alu repetitive element; contains element XTR XTR repetitive element;   |
| 9211                   | 22289                 | 35831             | 0.81                 | 2.4E-02                                       | AA025680.1               | EST_HUMAN                     |  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 9893                   | 22933                 | 38516             | 0.55                 | 2.4E-02                                       | AF124160.1               | NT                            | Arabidopsis thaliana mybdopterin synthase sulphuryase (csm5) gene, complete cds   |
| 9893                   | 22933                 | 38517             | 0.55                 | 2.4E-02                                       | AF124160.1               | NT                            | Arabidopsis thaliana mybdopterin synthase sulphuryase (csm5) gene, complete cds   |
| 10011                  | 23049                 | 38843             | 2.75                 | 2.4E-02                                       | AV692654.1               | EST_HUMAN                     | AV692654 GK0 Homo sapiens cDNA clone GKCDSC03 5'  |
| 10186                  | 23223                 | 38817             | 2.82                 | 2.4E-02                                       | AA493894.1               | EST_HUMAN                     | nt07b12 st NC1_CGAP_Thy1 Homo sapiens cDNA clone IMAGE:949383 similar to contains Alu repetitive element; contains element PTR5 repetitive element;                                       |
| 10899                  | 23872                 |                   | 0.6                  | 2.4E-02                                       | BE387111.1               | EST_HUMAN                     | 601274682F1 NIH_MGC_20 Homo sapiens cDNA clone IMAGE:3815902 5'   |
| 11874                  | 24862                 | 38557             | 2.45                 | 2.4E-02                                       | AF109905.1               | NT                            | Mus musculus major histocompatibility locus class III regions Hsc701 gene, partial cds; smRNP, G7A, NG23, Muts homolog, CLCP, NG24, NG25, and NG26 genes, complete cds; and unknown genes |
| 11874                  | 24862                 | 38558             | 2.45                 | 2.4E-02                                       | AF109905.1               | NT                            | Mus musculus major histocompatibility locus class III regions Hsc701 gene, partial cds; smRNP, G7A, NG23, Muts homolog, CLCP, NG24, NG25, and NG26 genes, complete cds; and unknown genes |
| 12210                  | 25163                 |                   | 3.98                 | 2.4E-02                                       | 9027909                  | NT                            | Backerophaga bil67, complete genome   |
| 12362                  | 25260                 | 32116             | 4.45                 | 2.4E-02                                       | 8763635                  | NT                            | Mus musculus Dmb homolog 1 (E. coli) (Dmb1), mRNA   |
| 12478                  | 25330                 | 32055             | 1.38                 | 2.4E-02                                       | U78187.1                 | NT                            | Rattus norvegicus cAMP-regulated guanine nucleotide exchange factor 1 (cAMP-GEF1) mRNA, complete cds  |
| 12478                  | 25330                 | 32056             | 1.38                 | 2.4E-02                                       | U78187.1                 | NT                            | Rattus norvegicus cAMP-regulated guanine nucleotide exchange factor 1 (cAMP-GEF1) mRNA, complete cds  |
| 12898                  | 25445                 |                   | 10.87                | 2.4E-02                                       | AB008589.1               | NT                            | cds   |
| 12897                  | 25494                 |                   | 1.28                 | 2.4E-02                                       | N42880.1                 | EST_HUMAN                     | y908cd8.1 Soares melanocyte 2Nblm Homo sapiens cDNA clone IMAGE:270610 5'   |
| 12883                  | 25900                 | 31858             | 1.25                 | 2.4E-02                                       | AA179883.1               | EST_HUMAN                     | zp13b01.1 Strategene fetal retina 937202 Homo sapiens cDNA clone IMAGE:608391 5'  |
| 1821                   | 15084                 |                   | 5.25                 | 2.3E-02                                       | W05340.1                 | EST_HUMAN                     | z884g08.1 Soares_fetal_lung_NbHL10W Homo sapiens cDNA clone IMAGE:288284 5'   |
| 1836                   | 15079                 |                   | 16.26                | 2.3E-02                                       | U94165.1                 | NT                            | 4 Homo sapiens mammary tumor-associated protein INT8 (NT6) gene, exon 4   |
| 2065                   | 15205                 | 28321             | 0.99                 | 2.3E-02                                       | AW797355.1               | EST_HUMAN                     | CM2-UM0038-280400-172-511 UM0038 Homo sapiens cDNA  |
| 2428                   | 15564                 | 28681             | 2.68                 | 2.3E-02                                       | Z74293.1                 | NT                            | S.cerevisiae chromosome IV reading frame ORF YDL245c  |
| 3773                   | 16834                 | 28940             | 7.02                 | 2.3E-02                                       | Z28377.1                 | EST_HUMAN                     | HSAACADH P. Human foetal Brain Whole tissue Homo sapiens cDNA   |
| 3807                   | 16887                 |                   | 0.67                 | 2.3E-02                                       | L23429.1                 | NT                            | Canis beta-galactoside-binding lectin (LGALS3) mRNA, 3' end   |
| 4287                   | 17412                 | 30368             | 1.17                 | 2.3E-02                                       | L24789.1                 | NT                            | Gallus gallus connexin 45.6 (Cx45.6) gene, complete cds   |
| 4287                   | 17412                 | 30369             | 1.17                 | 2.3E-02                                       | L24789.1                 | NT                            | Gallus gallus connexin 45.6 (Cx45.6) gene, complete cds   |
| 4540                   | 17678                 | 30600             | 1.08                 | 2.3E-02                                       | AW689107.1               | EST_HUMAN                     | CU44-NN0080-280400-160-504 NN0080 Homo sapiens cDNA   |
| 4571                   | 17709                 | 30689             | 0.8                  | 2.3E-02                                       | BE93225.1                | EST_HUMAN                     | CM3-MT0118-010800-318-g07 MT0118 Homo sapiens cDNA  |
| 4571                   | 17709                 | 30690             | 0.6                  | 2.3E-02                                       | BE93225.1                | EST_HUMAN                     | CM3-MT0118-010800-318-g07 MT0118 Homo sapiens cDNA  |
| 4572                   | 18469                 | 30691             | 1.2                  | 2.3E-02                                       | AW583683.1               | EST_HUMAN                     | xs25cd08.x1 NC1_CGAP_U12 Homo sapiens cDNA clone IMAGE:2770671 3'   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 4572                   | 18468                 | 30682             | 1.2                  | 2.3E-02                                       | AW593683.1               | EST_HUMAN                     | xs25cd08.x1 NCI_CGAP_U2 Homo sapiens cDNA clone IMAGE:2770671 3'   |
| 4717                   | 17852                 | 30835             | 3.01                 | 2.3E-02                                       | BF026487.1               | EST_HUMAN                     | 601672279F1 NIH_MGC_20 Homo sapiens cDNA clone IMAGE:3955398 5'  |
| 4717                   | 17852                 | 30836             | 3.01                 | 2.3E-02                                       | BF026487.1               | EST_HUMAN                     | 601672279F1 NIH_MGC_20 Homo sapiens cDNA clone IMAGE:3955398 5'  |
| 5144                   | 18267                 | 31237             | 0.9                  | 2.3E-02                                       | AW944307.1               | EST_HUMAN                     | RC2-CN0051-280100-011-407 CN0051 Homo sapiens cDNA   |
| 5265                   | 18384                 | 31349             | 0.62                 | 2.3E-02                                       | AF257110.1               | NT                            | Rattus norvegicus guanine nucleotide binding protein gamma subunit 11 mRNA, complete cds   |
| 5265                   | 18384                 | 31350             | 0.62                 | 2.3E-02                                       | AF257110.1               | NT                            | Rattus norvegicus guanine nucleotide binding protein gamma subunit 11 mRNA, complete cds   |
| 5491                   | 18690                 | 31707             | 3.86                 | 2.3E-02                                       | U86303.1                 | NT                            | Caulobacter crescentius topoisomerase IV PseE subunit (pseE) gene, complete cds, and propionyl-CoA carboxylase beta chain (pccB) homolog gene, partial cds |
| 6365                   | 19335                 | 32894             | 0.62                 | 2.3E-02                                       | BF106484.1               | EST_HUMAN                     | 601822321R1 NIH_MGC_77 Homo sapiens cDNA clone IMAGE:4042828 3'  |
| 6755                   | 19911                 | 33306             | 4                    | 2.3E-02                                       | AL161505.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 17  |
| 7119                   | 18545                 | 31456             | 0.69                 | 2.3E-02                                       | BE141475.1               | EST_HUMAN                     | MFR0-IT00890-011099-002-c08 HT0080 Homo sapiens cDNA   |
| 7619                   | 20989                 | 34184             | -0.63                | 2.3E-02                                       | AL163303.2               | NT                            | Homo sapiens chromosome 21 segment HS21C103  |
| 8060                   | 21143                 | 34661             | 4.52                 | 2.3E-02                                       | U63610.1                 | NT                            | Human plectin (PLEG1) gene, exons 3-32, and complete cds   |
| 8667                   | 21747                 | 35285             | 1.12                 | 2.3E-02                                       | AJ298105.1               | NT                            | Homo sapiens PDX1 gene for lipoyl-containing component X, exons 1-11   |
| 8667                   | 21747                 | 35286             | 1.12                 | 2.3E-02                                       | AJ298105.1               | NT                            | Homo sapiens PDX1 gene for lipoyl-containing component X, exons 1-11   |
| 8894                   | 21973                 | 35509             | 0.76                 | 2.3E-02                                       | AF685380.1               | EST_HUMAN                     | wa76h10.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2302147 3'  |
| 8894                   | 21973                 | 35510             | 0.75                 | 2.3E-02                                       | AF685380.1               | EST_HUMAN                     | wa76h10.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2302147 3'  |
| 8338                   | 22414                 | 35967             | 0.84                 | 2.3E-02                                       | P41988                   | SWISSPROT                     | HYPOTHETICAL 55.8 KD PROTEIN B0280.5 IN CHROMOSOME III PRECURSOR   |
| 10063                  | 23101                 | 36704             | 0.94                 | 2.3E-02                                       | P50532                   | SWISSPROT                     | CHROMOSOME ASSEMBLY PROTEIN XCAP-C   |
| 10236                  | 23271                 | 36882             | 1.44                 | 2.3E-02                                       | AE000186.1               | NT                            | Escherichia coli K-12 MG1655 section 89 of 400 of the complete genome  |
| 10236                  | 23271                 | 36863             | 1.44                 | 2.3E-02                                       | AE000186.1               | NT                            | Escherichia coli K-12 MG1655 section 89 of 400 of the complete genome  |
| 11022                  | 24101                 | 37789             | 2.38                 | 2.3E-02                                       | P08640                   | SWISSPROT                     | GLUCOAMYLASE S1/S2 PRECURSOR (GLUCAN 1,4-ALPHA-GLUCOSIDASE) (1,4-ALPHA-D-GLUCAN GLUCOHYDROLASE)  |
| 12338                  | 25819                 |                   | 3.61                 | 2.3E-02                                       | BE278331.1               | EST_HUMAN                     | 60179058F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3546567 5'   |
| 12801                  | 25535                 | 32011             | 1.78                 | 2.3E-02                                       | BF528462.1               | EST_HUMAN                     | 602043628F1 NCI_CGAP_Bm67 Homo sapiens cDNA clone IMAGE:4181454 5'   |
| 12801                  | 25535                 | 32012             | 1.78                 | 2.3E-02                                       | BF528462.1               | EST_HUMAN                     | 602043628F1 NCI_CGAP_Bm67 Homo sapiens cDNA clone IMAGE:4181454 5'   |
| 12819                  | 25604                 | 31974             | 2.47                 | 2.3E-02                                       | U36934.1                 | NT                            | Streptomyces sp. alpha-1,3/4-fucosidase precursor gene, complete cds   |
| 12975                  | 26195                 |                   | 1.88                 | 2.3E-02                                       | U11077.1                 | NT                            | Dicotyledonous dicotyledonous extracellular signal-regulated protein kinase (ERK1) mRNA, complete cds  |
| 756                    | 13937                 | 26982             | 3.59                 | 2.2E-02                                       | AF018287.1               | NT                            | Columbia livia nucleoside diphosphate kinase (NDPK) gene, nuclear gene encoding mitochondrial protein, complete cds  |
| 1786                   | 14935                 |                   | 1.78                 | 2.2E-02                                       | 4557448                  | NT                            | Homo sapiens chromodomain helixase DNA binding protein 2 (CHD2) mRNA   |
| 1800                   | 14949                 | 28042             | 2.94                 | 2.2E-02                                       | P07313                   | SWISSPROT                     | MYOSIN LIGHT CHAIN KINASE, SKELETAL MUSCLE (MLCK)  |
| 1800                   | 14949                 | 28043             | 2.94                 | 2.2E-02                                       | P07313                   | SWISSPROT                     | MYOSIN LIGHT CHAIN KINASE, SKELETAL MUSCLE (MLCK)  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Description  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 2072                   | 15212                 | 26329             | 2.17                 | 2.2E-02                                       | Z82001.1                 | NT                            | S.pneumoniae popA gene and open reading frames   |
| 3621                   | 16887                 |                   | 2.03                 | 2.2E-02                                       | AA577785.1               | EST_HUMAN                     | m24a04.s1 NCI_CGAP_Gest1 Homo sapiens cDNA clone IMAGE:1084782 3'  |
| 3738                   | 16897                 |                   | 4.09                 | 2.2E-02                                       | AF083094.1               | NT                            | Infectious bursal disease virus segment B strain IL4 VP1 gene, complete cds                                |
| 3856                   | 17114                 | 30116             | 0.88                 | 2.2E-02                                       | AW601317.1               | EST_HUMAN                     | PM0-BT0340-170100-004-b03 BT0340 Homo sapiens cDNA   |
| 4029                   | 17185                 | 30185             | 0.99                 | 2.2E-02                                       | Z74293.1                 | NT                            | S.cerevisiae chromosome IV reading frame ORF YDL245c   |
| 6177                   | 18299                 | 31262             | 1.37                 | 2.2E-02                                       | Z73597.1                 | NT                            | S.cerevisiae chromosome XVI reading frame ORF YPL241c  |
| 7398                   | 20474                 | 33941             | 3.43                 | 2.2E-02                                       | AV889721.1               | EST_HUMAN                     | AV889721 GKB Homo sapiens cDNA clone GKBAND03 3'   |
| 8568                   | 21847                 | 35188             | 1.41                 | 2.2E-02                                       | AL161515.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 27  |
| 8568                   | 21847                 | 35189             | 1.41                 | 2.2E-02                                       | AL161515.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 27  |
| 9009                   | 22088                 | 35680             | 0.82                 | 2.2E-02                                       | X79468.1                 | NT                            | P. vulgata alpha tub 2 mRNA  |
| 9850                   | 22898                 | 36478             | 0.48                 | 2.2E-02                                       | AJ243025.1               | NT                            | Mus musculus partial FBPPase 2 gene for Fructose-1,6-bisphosphatase, exon 5 and Intron 5                   |
| 9850                   | 22898                 | 36478             | 0.48                 | 2.2E-02                                       | AJ243025.1               | NT                            | Mus musculus partial FBPPase 2 gene for Fructose-1,6-bisphosphatase, exon 5 and Intron 5                   |
| 9850                   | 22898                 | 36478             | 0.48                 | 2.2E-02                                       | AJ243025.1               | NT                            | Homo sapiens DNA, DLEC1 to ORCTL4 gene region, section 1/2 (DLEC1, ORCTL3, ORCTL4 genes, complete cds)     |
| 9888                   | 22928                 | 36511             | 2.73                 | 2.2E-02                                       | AB026898.1               | NT                            | Homo sapiens DNA, DLEC1 to ORCTL4 gene region, section 1/2 (DLEC1, ORCTL3, ORCTL4 genes, complete cds)     |
| 9888                   | 22928                 | 36512             | 2.73                 | 2.2E-02                                       | AB026898.1               | NT                            | Mus musculus Sjogren syndrome antigen A1 (Ssa1), mRNA  |
| 10408                  | 23444                 |                   | 1.25                 | 2.2E-02                                       | 6878140                  | NT                            | ne47m7.s1 NCI_CGAP_Cos8 Homo sapiens cDNA clone IMAGE:900541 3' similar to contains Alu repetitive element |
| 12826                  | 25421                 |                   | 6.8                  | 2.2E-02                                       | AA503593.1               | EST_HUMAN                     | AV761502 MDS Homo sapiens cDNA clone MDSADG01 5'   |
| 432                    | 13627                 |                   | 4.48                 | 2.1E-02                                       | AV761502.1               | EST_HUMAN                     | Dicystosellum discoideum Histidine Kinase C (dhkC) mRNA, complete cds                                      |
| 462                    | 13657                 |                   | 6.62                 | 2.1E-02                                       | AF029728.1               | NT                            | Bacillus subtilis codKLM cluster, CodK (codK), and spore coat protein CotM (cotM) genes, complete cds      |
| 1202                   | 14448                 | 27514             | 6.65                 | 2.1E-02                                       | U72073.1                 | NT                            | Mus musculus macrophage migration inhibitory factor (MIF) gene, 5' flanking region and partial cds         |
| 1418                   | 14571                 | 27844             | 1.31                 | 2.1E-02                                       | AF204395.1               | NT                            | Mus musculus macrophage migration inhibitory factor (MIF) gene, 5' flanking region and partial cds         |
| 1418                   | 14571                 | 27845             | 1.31                 | 2.1E-02                                       | AF204395.1               | NT                            | KERATIN, HIGH-SULFUR MATRIX PROTEIN, B2A   |
| 1823                   | 14972                 | 28095             | 0.97                 | 2.1E-02                                       | P02438                   | SWISSPROT                     | KERATIN, HIGH-SULFUR MATRIX PROTEIN, B2A   |
| 1823                   | 14972                 | 28096             | 0.97                 | 2.1E-02                                       | P02438                   | SWISSPROT                     | KERATIN, HIGH-SULFUR MATRIX PROTEIN, B2A   |
| 1823                   | 14972                 | 28097             | 0.97                 | 2.1E-02                                       | P02438                   | SWISSPROT                     | KERATIN, HIGH-SULFUR MATRIX PROTEIN, B2A   |
| 2019                   | 15159                 | 28284             | 0.97                 | 2.1E-02                                       | AF190899.1               | NT                            | Tegula earedinella major aerosol protein precursor (TMAP) mRNA, complete cds                               |
| 2092                   | 15232                 | 28354             | 1.16                 | 2.1E-02                                       | BE072548.1               | EST_HUMAN                     | PM2-BT0546-120100-001-f11 BT0546 Homo sapiens cDNA   |
| 2092                   | 15232                 | 28355             | 1.16                 | 2.1E-02                                       | BE072548.1               | EST_HUMAN                     | PM2-BT0546-120100-001-f11 BT0546 Homo sapiens cDNA   |
| 2877                   | 13980                 | 27032             | 3.12                 | 2.1E-02                                       | N28283.1                 | EST_HUMAN                     | y43h07.1 Scores melanocyte 2NHFM Homo sapiens cDNA clone IMAGE:284541 5'                                   |
| 3674                   | 16837                 | 29847             | 1.01                 | 2.1E-02                                       | AA461271.1               | EST_HUMAN                     | z65309.1 Scores total_fetus Nib2HF8 sw Homo sapiens cDNA clone IMAGE:796121 5'                             |
| 4249                   | 17395                 | 30384             | 0.68                 | 2.1E-02                                       | Z74293.1                 | NT                            | S.cerevisiae chromosome IV reading frame ORF YDL245c   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 4427                   | 17567                 | 30549             | 0.89                 | 2.1E-02                                       | BF943655.1               | EST_HUMAN                     | 602016306F1 NCI_CGAP_Bn64 Homo sapiens cDNA clone IMAGE:4151161 5'   |
| 4567                   | 17705                 | 30685             | 2.14                 | 2.1E-02                                       | U44914.1                 | NT                            | Borrelia burgdorferi plasmid cp32-2, erpC and erpD genes, complete cds; and unknown genes                    |
| 4577                   | 17714                 | 30698             | 1.64                 | 2.1E-02                                       | A1768127.1               | EST_HUMAN                     | wg81d11.x1 Soares_NSIF_F8_9W_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:2371509 3'                             |
| 4831                   | 17804                 | 30853             | 5.95                 | 2.1E-02                                       | Y08601.1                 | NT                            | A. thaliana mitochondrial genome, part A   |
| 4852                   | 17985                 | 30973             | 0.76                 | 2.1E-02                                       | AA665737.1               | EST_HUMAN                     | sg55g12.e1 Geesler Wilms tumor Homo sapiens cDNA clone IMAGE:1126918 3'                                      |
| 4940                   | 18070                 | 31048             | 0.89                 | 2.1E-02                                       | A1823432.1               | EST_HUMAN                     | wh54e05.x1 NCI_CGAP_Kid11 Homo sapiens cDNA clone IMAGE:2394526 3'   |
| 5316                   | 18432                 | 31402             | 0.91                 | 2.1E-02                                       | BF026405.1               | EST_HUMAN                     | 601671411F1 NIH_MGC_20 Homo sapiens cDNA clone IMAGE:3954410 5'  |
| 5756                   | 18948                 | 32260             | 0.6                  | 2.1E-02                                       | AW376329.1               | EST_HUMAN                     | CNA4-H10244-111189-040-H05 HT0244 Homo sapiens cDNA  |
| 7212                   | 20077                 | 33490             | 0.73                 | 2.1E-02                                       | BF086189.1               | EST_HUMAN                     | QV3-GN0058-120900-329-a12 GN0058 Homo sapiens cDNA   |
| 8716                   | 21796                 | 35333             | 0.68                 | 2.1E-02                                       | 9760238                  | NT                            | Mus musculus sorting nexin 1 (Snx1), mRNA  |
| 9703                   | 22762                 | 36322             | 0.54                 | 2.1E-02                                       | AA984288.1               | EST_HUMAN                     | am83a07.a1 Stratagene schizo brain S11 Homo sapiens cDNA clone IMAGE:1629732 3' similar to contains          |
| 9831                   | 22871                 | 36453             | 2.49                 | 2.1E-02                                       | AJ243213.1               | NT                            | Alu repetitive element; contains element MER11 repetitive element;   |
| 9831                   | 22871                 | 36454             | 2.49                 | 2.1E-02                                       | AJ243213.1               | NT                            | Homo sapiens partial 5-HT4 receptor gene, exons 2 to 5   |
| 10189                  | 23226                 | 36820             | 1.15                 | 2.1E-02                                       | L26324.1                 | NT                            | Homo sapiens partial 5-HT4 receptor gene, exons 2 to 5   |
| 10268                  | 23301                 | 36889             | 0.75                 | 2.1E-02                                       | AA984288.1               | EST_HUMAN                     | Streptococcus pneumoniae integrase, excisionase, repressor protein, relaxase, UmuC MucB homolog, and         |
| 10358                  | 23889                 | 37508             | 0.49                 | 2.1E-02                                       | AF001518.1               | NT                            | UmuD MucA homolog genes, complete cds; and unknown genes   |
| 11787                  | 24777                 | 39474             | 1.48                 | 2.1E-02                                       | 6754255                  | NT                            | am83a07.a1 Stratagene schizo brain S11 Homo sapiens cDNA clone IMAGE:1629732 3' similar to contains          |
| 12063                  | 25044                 | 39762             | 1.42                 | 2.1E-02                                       | AW844320.1               | EST_HUMAN                     | Alu repetitive element; contains element MER11 repetitive element;   |
| 12602                  | 18493                 |                   | 11.16                | 2.1E-02                                       | Y19213.1                 | NT                            | Bacillus halodurans genomic DNA, section 13/14   |
| 12647                  | 26616                 | 31862             | 1.22                 | 2.1E-02                                       | L34170.1                 | NT                            | Mus musculus heat shock protein, 74 kDa, A (Hsp98a), mRNA  |
| 13091                  | 25712                 | 31898             | 3.82                 | 2.1E-02                                       | AF183913.1               | NT                            | RCA-CN0050-130200-012-H04_1 CN0050 Homo sapiens cDNA   |
| 19                     | 13257                 | 26257             | 1.28                 | 2.0E-02                                       | BF002832.1               | EST_HUMAN                     | Homo sapiens putative psbH-BA pseudogene for hair keratin, exons 2 to 7                                      |
| 20                     | 13258                 | 26258             | 14.96                | 2.0E-02                                       | AW895665.1               | EST_HUMAN                     | Human germline UBE1L gene similar to the gene for ubiquitin-activating enzyme, exons 1-22                    |
| 269                    | 13488                 | 26518             | 5.03                 | 2.0E-02                                       | 6753635                  | NT                            | Azospirillum brasilense major outer membrane protein OmaA precursor (omaA) gene, complete cds                |
| 306                    | 13622                 | 26556             | 2.96                 | 2.0E-02                                       | AA455638.1               | EST_HUMAN                     | MER1 repetitive element;   |
| 821                    | 14000                 | 27054             | 3.63                 | 2.0E-02                                       | 6753635                  | NT                            | QVJ-NN0038-270400-187-H05 NN0038 Homo sapiens cDNA   |
| 1111                   | 14276                 | 27333             | 0.98                 | 2.0E-02                                       | AL066805.1               | NT                            | Mus musculus Dmb1 homolog 1 (E. coli) (Dmb1), mRNA   |
| 1228                   | 14386                 | 27448             | 0.91                 | 2.0E-02                                       | 8922391                  | NT                            | Mus musculus Dmb1 homolog 1 (E. coli) (Dmb1), mRNA   |
|                        |                       |                   |                      |   |                          |                               | Mus musculus Dmb1 homolog 1 (E. coli) (Dmb1), mRNA   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens genomic region containing hypervariable minisatellites chromosome 1 [1(p96.33)] of Homo sapiens |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens hypothetical protein FLJ10379 (FLJ10379), mRNA  |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 1228                   | 14386                 | 27449             | 0.91                 | 2.0E-02                                       | 8922391                  | NT                            | Homo sapiens hypothetical protein FLJ10379 (FLJ10379), mRNA   |
| 1922                   | 15055                 | 28168             | 1.84                 | 2.0E-02                                       | 8922453                  | NT                            | Homo sapiens hypothetical protein FLJ10486 (FLJ10486), mRNA   |
| 1922                   | 15065                 | 28169             | 1.84                 | 2.0E-02                                       | 8922463                  | NT                            | Homo sapiens hypothetical protein FLJ10486 (FLJ10486), mRNA   |
| 2859                   | 15973                 |                   | 2.09                 | 2.0E-02                                       | AL161532.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 32   |
| 3148                   | 13257                 | 26257             | 1.56                 | 2.0E-02                                       | BF002832.1               | EST_HUMAN                     | 7g51c08.x1 NCI_CGAP_P728 Homo sapiens cDNA clone IMAGE:3308998 3' similar to contains MER1.13<br>MER1 repetitive element: |
| 3213                   | 16387                 |                   | 1.13                 | 2.0E-02                                       | 7305474                  | NT                            | Mus musculus sema domain, transmembrane domain (TM), and cytoplasmic domain, (semaphorin) 88<br>(Sema8b), mRNA            |
| 3298                   | 16473                 |                   | 1.89                 | 2.0E-02                                       | AF095588.1               | NT                            | Arabidopsis thaliana C2H2 zinc finger protein FZF mRNA, complete cds  |
| 4113                   | 17267                 | 30287             | 1.57                 | 2.0E-02                                       | M18095.1                 | NT                            | P. vulgaris hydroxyproline-rich glycoprotein (HRGP) mRNA, 3' end  |
| 5219                   | 18341                 |                   | 0.74                 | 2.0E-02                                       | AU71895.1                | EST_HUMAN                     | q83603.x1 NCI_CGAP_Kd3 Homo sapiens cDNA clone IMAGE:1866076 3'   |
| 6018                   | 19201                 | 32520             | 0.99                 | 2.0E-02                                       | L3521.2                  | NT                            | Dicystotellum discoideum class VII unconventional myosin (myo) gene, complete cds   |
| 7723                   | 20787                 | 34275             | 0.95                 | 2.0E-02                                       | AP000004.1               | NT                            | Pyrococcus horikoshii OT3 genomic DNA, 777001-994000 nt. position (477)   |
| 7723                   | 20787                 | 34276             | 0.95                 | 2.0E-02                                       | AP000004.1               | NT                            | Pyrococcus horikoshii OT3 genomic DNA, 777001-994000 nt. position (477)   |
| 10081                  | 23119                 |                   | 2.39                 | 2.0E-02                                       | U70408.1                 | NT                            | Japanese encephalitis virus envelope protein mRNA, partial cds  |
| 10570                  | 23605                 | 37210             | 1.84                 | 2.0E-02                                       | AI640342.1               | EST_HUMAN                     | wa17b02.x1 NCI_CGAP_Kd11 Homo sapiens cDNA clone IMAGE:2298315 3'   |
| 10879                  | 23954                 | 37592             | 1.65                 | 2.0E-02                                       | Z73968.1                 | NT                            | Mycobacterium tuberculosis H37Rv complete genome; segment 83/162  |
| 11653                  | 24732                 | 38423             | 1.91                 | 2.0E-02                                       | D88184.1                 | NT                            | Equus caballus DNA for 17alpha-hydroxylase/17,20-lyase, complete cds  |
| 11978                  | 24953                 | 38684             | 2.04                 | 2.0E-02                                       | 10947055                 | NT                            | Homo sapiens ankyrin 3, node of Ranvier (ankyrin G) (ANK3), transcript variant 1, mRNA                                    |
| 11978                  | 24963                 | 38685             | 2.04                 | 2.0E-02                                       | 10947055                 | NT                            | Homo sapiens ankyrin 3, node of Ranvier (ankyrin G) (ANK3), transcript variant 1, mRNA                                    |
| 12149                  | 18499                 | 31535             | 1.8                  | 2.0E-02                                       | AA456538.1               | EST_HUMAN                     | ear15b10.r1 Scores_NIHMPu_S1 Homo sapiens cDNA clone IMAGE:513507 5'  |
| 12844                  | 15973                 |                   | 2.26                 | 2.0E-02                                       | AL161532.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 32   |
| 13186                  | 25771                 |                   | 5.63                 | 2.0E-02                                       | T80037.1                 | EST_HUMAN                     | y044c09.r1 Scores Infant brain INIB Homo sapiens cDNA clone IMAGE:24876 5'  |
| 711                    | 19893                 | 26928             | 2.42                 | 1.9E-02                                       | AA572784.1               | EST_HUMAN                     | mf18a07.s1 NCI_CGAP_P71 Homo sapiens cDNA clone IMAGE:914186 similar to contains L1.11 L1<br>repetitive element:          |
| 2097                   | 15237                 | 28358             | 4.85                 | 1.9E-02                                       | AL163303.2               | NT                            | Homo sapiens chromosome 21 segment HS21C103   |
| 2097                   | 15237                 | 28359             | 4.85                 | 1.9E-02                                       | AL163303.2               | NT                            | Homo sapiens chromosome 21 segment HS21C103   |
| 2970                   | 18148                 | 29164             | 9.16                 | 1.9E-02                                       | AA713856.1               | EST_HUMAN                     | mw04f05.s1 NCI_CGAP_S51 Homo sapiens cDNA clone IMAGE:1236337 3'  |
| 3018                   | 18184                 | 29217             | 1.92                 | 1.9E-02                                       | AV648690.1               | EST_HUMAN                     | AV648698 GLC Homo sapiens cDNA clone J1.CBLH07 3'   |
| 3332                   | 16505                 |                   | 0.72                 | 1.9E-02                                       | AB039611.1               | NT                            | Utricularia talpoides mitochondrial gene for cytochrome b, complete cds   |
| 3689                   | 16860                 |                   | 1.12                 | 1.9E-02                                       | IN52250.1                | EST_HUMAN                     | y238502.s1 Scores_multiple_sclerotic_2NHRMSP Homo sapiens cDNA clone IMAGE:284331 3'                                      |
| 3793                   | 16954                 |                   | 8.1                  | 1.9E-02                                       | BE738088.1               | EST_HUMAN                     | 601672882F1 NIH_MGC_67 Homo sapiens cDNA clone IMAGE:3839594 5'   |
| 3808                   | 16988                 | 29971             | 0.83                 | 1.9E-02                                       | AI901183.1               | EST_HUMAN                     | qin04c07.x1 NCI_CGAP_P71 Homo sapiens cDNA clone IMAGE:1897260 3' similar to contains Alu repetitive<br>element:          |

Page 167 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 4158                   | 17309                 | 30306             | 1.3                  | 1.9E-02                                       | AF141940.1               | NT                            | Myoplasma imitans VihA1 precursor (vihA1) and VihA2 precursor (vihA2) genes, partial cds                                  |
| 4310                   | 17453                 | 30440             | 1.58                 | 1.9E-02                                       | P08081                   | SWISSPROT                     | HOMEOITC BICOID PROTEIN (PRD-4)   |
| 4310                   | 17453                 | 30441             | 1.58                 | 1.9E-02                                       | P08081                   | SWISSPROT                     | HOMEOITC BICOID PROTEIN (PRD-4)   |
| 4683                   | 17798                 | 30785             | 2.79                 | 1.9E-02                                       | AK52898.1                | EST_HUMAN                     | 46804.x1 Soares_NSF_F8_9W_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:2144551 3' similar to contains Alu repetitive element; |
| 5125                   | 15701                 | 28822             | 4.22                 | 1.9E-02                                       | AL161550.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 50   |
| 5431                   | 18631                 | 31608             | 0.96                 | 1.9E-02                                       | AF037382.1               | NT                            | Mus musculus T cell receptor gamma locus, TCR gamma 1 and gamma 3 gene clusters   |
| 5585                   | 18780                 | 31825             | 1.25                 | 1.9E-02                                       | L47572.1                 | NT                            | Meleagris gallopavo paraxonase-2 (PON2) mRNA, complete cds  |
| 5808                   | 18087                 | 31780             | 0.83                 | 1.9E-02                                       | AB019507.1               | NT                            | Drosophila karekai gene for glyceral-3-phosphate dehydrogenase, complete cds  |
| 7250                   | 20333                 | 33780             | 1.1                  | 1.9E-02                                       | U19241.1                 | NT                            | Homo sapiens interferon-gamma receptor alpha chain gene, exon 1   |
| 7250                   | 20333                 | 33781             | 1.1                  | 1.9E-02                                       | U19241.1                 | NT                            | Homo sapiens interferon-gamma receptor alpha chain gene, exon 1   |
| 7659                   | 21848                 | 36168             | 1.33                 | 1.9E-02                                       | AL162754.2               | NT                            | Neisseria meningitidis serogroup A strain Z2491 complete genome, segment 3/7  |
| 9632                   | 22597                 | 36168             | 1.21                 | 1.9E-02                                       | BF316128.1               | EST_HUMAN                     | 601896130F1 NIH_MGC_19 Homo sapiens cDNA clone IMAGE:4126482 6'   |
| 9814                   | 22854                 | 36540             | 0.67                 | 1.9E-02                                       | L10114.1                 | NT                            | Nicotiana tabacum type II phytochrome (phyB) gene, complete cds   |
| 10251                  | 23288                 | 36882             | 1.24                 | 1.9E-02                                       | BF695832.1               | EST_HUMAN                     | 601852385F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:4076283 5'   |
| 10458                  | 23463                 | 37104             | 0.87                 | 1.9E-02                                       | D64001.1                 | NT                            | Synochocystis sp. PCC8803 complete genome, 2027, 2535000-2844784  |
| 11021                  | 24100                 | 37738             | 1.91                 | 1.9E-02                                       | AF008838.1               | NT                            | Vibrio cholerae V86 phage putative replication protein gene, complete cds   |
| 12372                  | 25824                 | 31886             | 4.41                 | 1.9E-02                                       | AF101085.1               | NT                            | Hirudo medicinalis intermediate filament fibrin mRNA, complete cds  |
| 13008                  | 25890                 |                   | 1.46                 | 1.9E-02                                       | L11068.1                 | NT                            | Candida albicans lambda Cas3/B fragment   |
| 368                    | 13567                 | 26506             | 1.67                 | 1.8E-02                                       | AW771104.1               | EST_HUMAN                     | h52a06.x1 NCJ_CGAP_Co17 Homo sapiens cDNA clone IMAGE:3027274 3' similar to contains element                              |
| 703                    | 13683                 | 26918             | 1.81                 | 1.8E-02                                       | BF308122.1               | EST_HUMAN                     | MER29 repetitive element;   |
| 1188                   | 14348                 | 27408             | 1.43                 | 1.8E-02                                       | X17684.1                 | NT                            | 601894329F1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:4136883 5'   |
| 1467                   | 14821                 | 27704             | 1.38                 | 1.8E-02                                       | AF243382.1               | NT                            | H. fructus mRNA for myelin basic protein (MBP)  |
| 2743                   | 15960                 | 28972             | 1.74                 | 1.8E-02                                       | AE004544.1               | NT                            | Drosophila melanogaster cytoplasmic protein encora (enc) mRNA, complete cds   |
| 3282                   | 18456                 |                   | 0.94                 | 1.8E-02                                       | AB058329.1               | EST_HUMAN                     | Pseudomonas aeruginosa PA01, section 105 of 529 of the complete genome  |
| 3983                   | 17160                 | 30156             | 1.09                 | 1.8E-02                                       | AW879122.1               | EST_HUMAN                     | ts25a09.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2090286 3'   |
| 3983                   | 17160                 | 30157             | 1.09                 | 1.8E-02                                       | AW879122.1               | EST_HUMAN                     | MR1-OT0011-280300-009-g04 OT0011 Homo sapiens cDNA  |
| 4197                   | 17347                 |                   | 1.01                 | 1.8E-02                                       | AA861448.1               | EST_HUMAN                     | MR1-OT0011-280300-009-g04 OT0011 Homo sapiens cDNA  |
| 4550                   | 17888                 | 30638             | 1.52                 | 1.8E-02                                       | AW896963.1               | EST_HUMAN                     | ak2404.s1 Soares_testis_N-TT Homo sapiens cDNA clone IMAGE:1406836 3'   |
| 6068                   | 18197                 | 31171             | 2.02                 | 1.8E-02                                       | O60810                   | SWISSPROT                     | QV4-DT0021-301289-071-b11 DT0021 Homo sapiens cDNA  |
| 6949                   | 20262                 | 33700             | 4.44                 | 1.8E-02                                       | P14310                   | SWISSPROT                     | HYPOTHETICAL PROTEIN DJ845024.2   |
| 7824                   | 20694                 | 34170             | 2.3                  | 1.8E-02                                       | BF125690.1               | EST_HUMAN                     | HYPOTHETICAL 7.9 KD PROTEIN IN FIXW 5'REGION  |
| 7850                   | 20694                 | 34170             | 0.61                 | 1.8E-02                                       | BF125690.1               | EST_HUMAN                     | 601763268F1 NIH_MGC_20 Homo sapiens cDNA clone IMAGE:4028280 5'   |

Page 188 of 550  
Table 4  
Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 8322                   | 21404                 | 34931             | 0.88                 | 1.8E-02                                       | U37091.1                 | NT                            | Mus musculus carbonic anhydrase IV gene, complete cds   |
| 8863                   | 21743                 | 35283             | 0.46                 | 1.8E-02                                       | AW805327.1               | EST_HUMAN                     | Q12-NN1073-220400-159-109 NN1073 Homo sapiens cDNA  |
| 8710                   | 21780                 | 35328             | 0.76                 | 1.8E-02                                       | 6678943                  | NT                            | Mus musculus microtubule-associated protein 2 (Map2), mRNA  |
| 9683                   | 22742                 | 36311             | 0.57                 | 1.8E-02                                       | BF241824.1               | EST_HUMAN                     | 601877026F1 NIH_MGC_55 Homo sapiens cDNA clone IMAGE:4105303 5'   |
| 9683                   | 22742                 | 36312             | 0.57                 | 1.8E-02                                       | BF241824.1               | EST_HUMAN                     | 601877026F1 NIH_MGC_55 Homo sapiens cDNA clone IMAGE:4105303 5'   |
| 9842                   | 22882                 |                   | 2.23                 | 1.8E-02                                       | AA897543.1               | EST_HUMAN                     | q12708.s1 Soares testis_NHT Homo sapiens cDNA clone IMAGE:1394921 3' similar to gbL11672 ZINC             |
| 10268                  | 23303                 | 36900             | 1.7                  | 1.8E-02                                       | BE778274.1               | EST_HUMAN                     | FINGER PROTEIN 91 (HUMAN);  |
| 10431                  | 23466                 | 37072             | 1.29                 | 1.8E-02                                       | X98933.1                 | NT                            | 601463545F1 NIH_MGC_97 Homo sapiens cDNA clone IMAGE:3888863 5'   |
| 11721                  | 23907                 | 37530             | 1.78                 | 1.8E-02                                       | AB002337.2               | NT                            | Lisignais mRNA for myomodulin neuropeptide precursor  |
| 11721                  | 23907                 | 37531             | 1.78                 | 1.8E-02                                       | AB002337.2               | NT                            | Homo sapiens mRNA for KIAA0339 protein, partial cds   |
| 11912                  | 24939                 | 38602             | 1.55                 | 1.8E-02                                       | AP000006.1               | NT                            | Homo sapiens mRNA for KIAA0339 protein, partial cds   |
| 11926                  | 24912                 | 38613             | 2.45                 | 1.8E-02                                       | U62749.1                 | NT                            | Pyrococcus horikoshii OT3 genomic DNA, 1168001-1485000 nt. position (87)                                  |
| 13096                  | 25994                 |                   | 1.78                 | 1.8E-02                                       | AF202180.1               | NT                            | Zea mays acidic ribosomal protein P2a-3 (pp2a-3) mRNA, partial cds  |
| 929                    | 14104                 | 27187             | 1.34                 | 1.7E-02                                       | BE394869.1               | EST_HUMAN                     | Plasmodium falciparum erythrocyte membrane-associated plant protein antigen 332 (Ag332) gene, partial cds |
| 1831                   | 14979                 | 28076             | 2.12                 | 1.7E-02                                       | AW573183.1               | EST_HUMAN                     | 601310626F1 NIH_MGC_44 Homo sapiens cDNA clone IMAGE:3632190 5'   |
| 1831                   | 14979                 | 28076             | 2.12                 | 1.7E-02                                       | AW573183.1               | EST_HUMAN                     | h34603.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2833740 3' similar to contains                |
| 1920                   | 15063                 |                   | 2.85                 | 1.7E-02                                       | AL163204.2               | NT                            | L1.11 L1 repetitive element;  |
| 2161                   | 15316                 |                   | 13.19                | 1.7E-02                                       | AB004816.1               | NT                            | Homo sapiens chromosome 21 segment HS21C004   |
| 2705                   | 15823                 |                   | 1.38                 | 1.7E-02                                       | 7657495                  | NT                            | Oryctolagus cuniculus mRNA for mitauginin20, complete cds   |
| 3062                   | 16236                 | 29259             | 0.89                 | 1.7E-02                                       | A1147816.1               | EST_HUMAN                     | Homo sapiens putative Rab5 GTP/GTP exchange factor homologous (RABEX5), mRNA                              |
| 3602                   | 16766                 |                   | 4.84                 | 1.7E-02                                       | AW827388.1               | EST_HUMAN                     | q622a08.x1 Soares_pregnant_uterus_NthHPU Homo sapiens cDNA clone IMAGE:1838982 3'                         |
| 3716                   | 16877                 |                   | 0.83                 | 1.7E-02                                       | FO4929                   | SWISSPROT                     | hrr45d04.x1 NCI_CGAP_RDF1 Homo sapiens cDNA clone IMAGE:3015534 3' similar to contains                    |
| 4284                   | 17429                 |                   | 1.23                 | 1.7E-02                                       | AA688618.1               | EST_HUMAN                     | MER19.b1 MER19 repetitive element;  |
| 4317                   | 17460                 |                   | 2.02                 | 1.7E-02                                       | RO2606.1                 | EST_HUMAN                     | HISTIDINE-RICH GLYCOPROTEIN PRECURSOR   |
| 4576                   | 17713                 | 30687             | 0.74                 | 1.7E-02                                       | AI305279.1               | EST_HUMAN                     | act1804.s1 Stragene ovary (#837217) Homo sapiens cDNA clone IMAGE:355927 3' similar to contains AU        |
| 4649                   | 17785                 | 30768             | 1.32                 | 1.7E-02                                       | AW573183.1               | EST_HUMAN                     | repetitive element/contains element MER24 repetitive element;   |
|                        |                       |                   |                      |   |                          |                               | y66108.t1 Soares fetal liver spleen 1NFL9 Homo sapiens cDNA clone IMAGE:124847 5'                         |
|                        |                       |                   |                      |   |                          |                               | qm08q07.x1 NCI_CGAP_Lus Homo sapiens cDNA clone IMAGE:1881276 3' similar to gbX52359 ZINC                 |
|                        |                       |                   |                      |   |                          |                               | FINGER PROTEIN 30 (HUMAN);  |
|                        |                       |                   |                      |   |                          |                               | hrr4603.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2833740 3' similar to contains               |
|                        |                       |                   |                      |   |                          |                               | L1.11 L1 repetitive element;  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 4836                   | 17689                 | 30857             | 1.91                 | 1.7E-02                                       | V00941.1                 | NT                            | Messenger RNA for anglerfish ( <i>Lophius americanus</i> ) somatostatin II   |
| 4834                   | 18084                 |                   | 5.98                 | 1.7E-02                                       | AI015078.1               | EST_HUMAN                     | ov61c02.s1 Soares testis_NHT Homo sapiens cDNA clone IMAGE:1640858 3'  |
| 6253                   | 19427                 | 32773             | 1.69                 | 1.7E-02                                       | A1769247.1               | EST_HUMAN                     | wg35f09.x1 Soares NSF_F8_gw_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:2367113 3' similar to contains Alu repetitive element   |
| 6709                   | 19887                 | 33256             | 1.23                 | 1.7E-02                                       | AK038280.1               | EST_HUMAN                     | ov65h103.x1 Soares fetal_liver_splice_1NFLS_S1 Homo sapiens cDNA clone IMAGE:1672661 3'  |
| 7195                   | 20060                 | 33471             | 1.28                 | 1.7E-02                                       | AF180930.1               | NT                            | Mus musculus fascicularis protein tyrosine phosphatase (PRL-1) mRNA, complete cds  |
| 7353                   | 20432                 | 33894             | 1.9                  | 1.7E-02                                       | 8400716                  | NT                            | Homo sapiens nebulin (NEB), mRNA   |
| 7513                   | 20587                 | 34060             | 1.08                 | 1.7E-02                                       | L07899.1                 | NT                            | Human apolipoprotein (a) gene, exon 1  |
| 7513                   | 20587                 | 34061             | 1.08                 | 1.7E-02                                       | L07899.1                 | NT                            | Human apolipoprotein (a) gene, exon 1  |
| 7621                   | 20972                 |                   | 1.71                 | 1.7E-02                                       | AL010770.1               | NT                            | Homo sapiens hyperion gene, exons 1-30   |
| 9538                   | 21079                 | 34591             | 0.89                 | 1.7E-02                                       | U21854.1                 | NT                            | Caenorhabditis elegans cCAF1 protein gene, complete cds  |
| 9900                   | 22040                 | 36526             | 1.28                 | 1.7E-02                                       | AL040594.1               | EST_HUMAN                     | DKFZP434H0314.1 434 (synonym: hhes3) Homo sapiens cDNA clone DKFZP434H0314.5'  |
| 12063                  | 25073                 | 38790             | 1.68                 | 1.7E-02                                       | 5802007                  | NT                            | Homo sapiens serum constituent protein (MISE66), mRNA  |
| 12881                  | 26111                 | 31687             | 2.35                 | 1.7E-02                                       | AW903482.1               | EST_HUMAN                     | CM4-NN1030-040400-130-406 NN1030 Homo sapiens cDNA   |
| 13166                  | 25757                 | 31928             | 1.46                 | 1.7E-02                                       | AA846926.1               | EST_HUMAN                     | ce08d04.e1 NCL_CGAP_Ov2 Homo sapiens cDNA clone IMAGE:1385287 similar to contains element MSR1 repetitive element  |
| 524                    | 13717                 |                   | 4.05                 | 1.6E-02                                       | AL021829.1               | NT                            | Mycobacterium tuberculosis H37Rv complete genome; segment 13/162   |
| 1889                   | 14841                 | 27928             | 1.37                 | 1.6E-02                                       | Y18889.1                 | NT                            | Treponema maltophilum flaB2, flaB3 and flilD genes for flagellin subunit proteins and CAP protein homologues   |
| 2323                   | 15455                 | 28586             | 1.81                 | 1.6E-02                                       | Q64178                   | SWISSPROT                     | LIVER CARBOXYL ESTERASE 22 PRECURSOR (EGASYN) (ESTERASE-22)  |
| 2323                   | 15455                 | 28587             | 1.81                 | 1.6E-02                                       | Q64178                   | SWISSPROT                     | LIVER CARBOXYL ESTERASE 22 PRECURSOR (EGASYN) (ESTERASE-22)  |
| 2631                   | 15754                 | 28869             | 0.97                 | 1.6E-02                                       | AJ006345.1               | NT                            | Homo sapiens KVLQ11 gene   |
| 2708                   | 15826                 | 28941             | 1.75                 | 1.6E-02                                       | AA484872.1               | EST_HUMAN                     | ne81d08.s1 NCL_CGAP_Ew1 Homo sapiens cDNA clone IMAGE:910867   |
| 2758                   | 15876                 |                   | 1.01                 | 1.6E-02                                       | AB014634.1               | NT                            | Homo sapiens mRNA for KIAA0634 protein, partial cds  |
| 3614                   | 16778                 | 29769             | 5.33                 | 1.6E-02                                       | AW850662.1               | EST_HUMAN                     | IL3-CT0219-160200-063-C07 CT0219 Homo sapiens cDNA   |
| 4291                   | 17436                 |                   | 1.86                 | 1.6E-02                                       | AF110520.1               | NT                            | Mus musculus major histocompatibility complex region NG27, NG28, RPS28, NADH oxidoreductase, NG29, KIFC1, Fas-binding protein, BING1, lipase, RafGDS-like, KE2, BING4, beta 1,3-galactosyl transferase, and RPS18 genes, complete cds; Sacm21 gene, partial> |
| 4415                   | 17556                 | 30543             | 2.04                 | 1.6E-02                                       | AW875407.1               | EST_HUMAN                     | QV2-PT0012-140100-030-07 PT0012 Homo sapiens cDNA  |
| 5367                   | 18570                 | 31488             | 0.59                 | 1.6E-02                                       | AI281385.1               | EST_HUMAN                     | q442b08.x1 NCL_CGAP_Lym5 Homo sapiens cDNA clone IMAGE:1067417 3'  |
| 5741                   | 18634                 | 32234             | 1.42                 | 1.6E-02                                       | 6871716                  | NT                            | Mus musculus CD6 antigen (Cd6), mRNA   |
| 6780                   | 19635                 | 33331             | 2.16                 | 1.6E-02                                       | AB015281.1               | NT                            | Cardinia albicans CaGCR3 gene, complete cds  |
| 7071                   | 20124                 | 33539             | 1.14                 | 1.6E-02                                       | AB027571.1               | NT                            | Saccharomyces cerevisiae CAD2 gene for cadmium resistance protein, complete cds  |
| 7071                   | 20124                 | 33540             | 1.14                 | 1.6E-02                                       | AB027571.1               | NT                            | Saccharomyces cerevisiae CAD2 gene for cadmium resistance protein, complete cds  |

Page 170 of 550  
Table 4  
Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 7888                   | 20940                 | 34446             | 0.98                 | 1.6E-02                                       | AL161508.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 20                                       |
| 8312                   | 21394                 | 34919             | 0.74                 | 1.6E-02                                       | AJ277682.1               | NT                            | Homo sapiens partial TUB gene for tubby (mouse) homolog and LMO1 gene for LIM domain only 1 protein |
| 8372                   | 21453                 |                   | 3.37                 | 1.6E-02                                       | X05151.1                 | NT                            | Human epoC-II gene for preprothrombin protein C-II  |
| 10246                  | 23281                 |                   | 2.97                 | 1.6E-02                                       | AF079764.1               | NT                            | Drosophila melanogaster enhancer of polycomb (E(Pc)) mRNA, complete cds                             |
| 10633                  | 23667                 | 37276             | 1.61                 | 1.6E-02                                       | AA572818.1               | EST_HUMAN                     | nt18q03.s1 NCL CGAP_P1 Homo sapiens cDNA clone IMAGE:914260 similar to SW:TELO_RABIT                |
| 10633                  | 23667                 | 37277             | 1.61                 | 1.6E-02                                       | AA572818.1               | EST_HUMAN                     | P28294 TELOKIN. [1]:  |
| 11149                  | 23668                 | 37848             | 2.9                  | 1.6E-02                                       | Z94828.1                 | NT                            | nt18q03.s1 NCL CGAP_P1 Homo sapiens cDNA clone IMAGE:914260 similar to SW:TELO_RABIT                |
| 11488                  | 24547                 | 38219             | 2.11                 | 1.6E-02                                       | AL161508.2               | NT                            | G.gallus microsatellite DNA (LEID260 (=T1618E11))   |
| 11488                  | 24547                 | 38220             | 2.11                 | 1.6E-02                                       | AL161508.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 20                                       |
| 11488                  | 24547                 | 38220             | 2.11                 | 1.6E-02                                       | AL161508.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 20                                       |
| 11801                  | 24791                 | 38488             | 2.16                 | 1.6E-02                                       | AJ373558.1               | EST_HUMAN                     | q28e10.x1 Scores_pregnant_uterus_NHPU Homo sapiens cDNA clone IMAGE:2042442 3'                      |
| 12348                  | 15455                 | 28588             | 3.49                 | 1.6E-02                                       | Q64176                   | SWISSPROT                     | LIVER CARBOXYLESTERASE 22 PRECURSOR (EGASYN) (ESTERASE-22)  |
| 12348                  | 15455                 | 28587             | 3.49                 | 1.6E-02                                       | Q64176                   | SWISSPROT                     | LIVER CARBOXYLESTERASE 22 PRECURSOR (EGASYN) (ESTERASE-22)  |
| 770                    | 13951                 |                   | 9.38                 | 1.5E-02                                       | 8923734                  | NT                            | Homo sapiens transcription factor (HSA130894), mRNA   |
| 2209                   | 16343                 | 28469             | 3.58                 | 1.5E-02                                       | N9521.1                  | EST_HUMAN                     | W27607.s1 Scores fetal liver spleen 1N1LS Homo sapiens cDNA clone IMAGE:243625 3'                   |
| 2244                   | 15377                 | 28505             | 1.6                  | 1.5E-02                                       | AL161594.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 80                                       |
| 3128                   | 16304                 | 28317             | 1.04                 | 1.5E-02                                       | AJ006216.1               | NT                            | Homo sapiens CACNA1F gene, exons 1 to 48  |
| 3128                   | 16304                 | 28318             | 1.04                 | 1.5E-02                                       | AJ006216.1               | NT                            | Homo sapiens CACNA1F gene, exons 1 to 48  |
| 3818                   | 16978                 | 28682             | 1.14                 | 1.5E-02                                       | AJ006216.1               | EST_HUMAN                     | Homo sapiens CACNA1F gene, exons 1 to 48  |
| 4590                   | 17727                 | 30710             | 0.72                 | 1.5E-02                                       | BF092942.1               | NT                            | NR4-TN0115-080900-201-512 TN0115 Homo sapiens cDNA  |
| 8423                   | 18582                 | 32857             | 2.07                 | 1.5E-02                                       | AF260725.1               | SWISSPROT                     | Homo sapiens TESTIN 2 and TESTIN 3 genes, complete cds, alternatively spliced                       |
| 7472                   | 20547                 |                   | 1.69                 | 1.5E-02                                       | 11467282                 | NT                            | HYPOTHETICAL CALCIUM-BINDING PROTEIN C18B11.04 IN CHROMOSOME 1                                      |
| 7561                   | 20633                 | 34108             | 1.57                 | 1.5E-02                                       | 11418713                 | NT                            | Cyanophora paradoxa cyanelle, complete genome   |
| 8058                   | 21141                 | 34650             | 1.38                 | 1.5E-02                                       | AL163503.2               | NT                            | Homo sapiens KIAA1009 protein (KIAA1009), mRNA  |
| 8058                   | 21147                 | 34658             | 3.08                 | 1.5E-02                                       | 11417739                 | NT                            | Homo sapiens chromosome 21 segment HS21C103   |
| 9030                   | 22105                 | 36650             | 1.42                 | 1.5E-02                                       | BF345594.1               | EST_HUMAN                     | Homo sapiens vely-5 RNA synthetase 2 (VARS2), mRNA  |
| 9030                   | 22105                 | 36650             | 1.42                 | 1.5E-02                                       | BF345594.1               | EST_HUMAN                     | 602018135F1 NCL CGAP_Bm67 Homo sapiens cDNA clone IMAGE:4154504 5'                                  |
| 9030                   | 22105                 | 36650             | 1.42                 | 1.5E-02                                       | BF345594.1               | EST_HUMAN                     | Homo sapiens kinase-related protein isoform 1 mRNA, complete cds                                    |
| 9770                   | 22768                 | 36537             | 1.59                 | 1.5E-02                                       | D44806.1                 | NT                            | Saccharomyces cerevisiae chromosome VI plasmid GapC   |
| 10016                  | 23054                 | 36849             | 1.3                  | 1.5E-02                                       | R32667.1                 | EST_HUMAN                     | yf64b10.r1 Scores placenta N62-4P Homo sapiens cDNA clone IMAGE:133531 5'                           |
| 10016                  | 23054                 | 36850             | 1.3                  | 1.5E-02                                       | R32667.1                 | EST_HUMAN                     | yf64b10.r1 Scores placenta N62-4P Homo sapiens cDNA clone IMAGE:133531 5'                           |
| 10650                  | 23693                 | 37514             | 0.46                 | 1.5E-02                                       | T92198.1                 | EST_HUMAN                     | yel17f10.s1 Strabagene lung (4937210) Homo sapiens cDNA clone IMAGE:118027 3'                       |
| 11056                  | 24133                 |                   | 1.78                 | 1.5E-02                                       | D26647.1                 | NT                            | Rice gene for fibroblast h, complete cds  |

Page 171 of 550  
Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 11442                  | 24503                 | 38171             | 2.21                 | 1.5E-02                                       | L40609.1                 | NT                            | Plasmodium falciparum (strain FCR3) variant-specific surface protein (var-2, var-3) genes, complete cds's  |
| 12576                  | 25970                 |                   | 2.38                 | 1.5E-02                                       | AW750834.1               | EST_HUMAN                     | RC4-CN0049-140100-011-c11 CN0049 Homo sapiens cDNA   |
| 430                    | 13626                 |                   | 1.64                 | 1.4E-02                                       | AE002230.2               | NT                            | Chlamydia pneumoniae AR39, section 58 of 94 of the complete genome   |
| 1142                   | 14307                 | 27363             | 3.81                 | 1.4E-02                                       | 7705980                  | NT                            | Homo sapiens NESH protein (LOC81225), mRNA   |
| 1285                   | 14441                 |                   | 2.12                 | 1.4E-02                                       | U32800.1                 | NT                            | Haemophilus influenzae Rd section 115 of 163 of the complete genome  |
| 1326                   | 14483                 |                   | 2.49                 | 1.4E-02                                       | U67778.1                 | NT                            | Xenopus laevis neurogranin related 1b (X-NGNR-1b) mRNA, complete cds   |
| 3284                   | 16458                 | 29478             | 1.83                 | 1.4E-02                                       | AF160989.2               | NT                            | Blifobacterium longum Nav/H+ antiporter (nhaB), cytosine deaminase, and alpha-galactosidase (agl.) genes, complete cds; and N-acetylglucosaminylxylase repressor protein (nagCxyR) gene, partial cds |
| 3485                   | 16653                 | 28658             | 1.23                 | 1.4E-02                                       | AW074212.1               | EST_HUMAN                     | xb09d09.x1 NCI_CGAP_GU1 Homo sapiens cDNA clone IMAGE:2575793 3'   |
| 3573                   | 16738                 | 28763             | 6.9                  | 1.4E-02                                       | AL161686.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 82  |
| 3573                   | 16738                 | 28764             | 6.9                  | 1.4E-02                                       | AL161686.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 82  |
| 3608                   | 16772                 | 28787             | 0.75                 | 1.4E-02                                       | 4503828                  | NT                            | Homo sapiens coagulation factor XII (Hageman factor) (F12), mRNA   |
| 3746                   | 16907                 | 28911             | 12.14                | 1.4E-02                                       | 6893978                  | NT                            | Mus musculus histocompatibility 2, complement component factor B (H2-Bf), mRNA   |
| 4612                   | 17749                 | 30729             | 9.97                 | 1.4E-02                                       | AW962688.1               | EST_HUMAN                     | EST1374761 MAGE resequences, MAGG Homo sapiens cDNA  |
| 4612                   | 17749                 | 30730             | 9.97                 | 1.4E-02                                       | AW962688.1               | EST_HUMAN                     | EST1374761 MAGE resequences, MAGG Homo sapiens cDNA  |
| 4998                   | 18127                 | 31102             | 6.22                 | 1.4E-02                                       | BE733142.1               | EST_HUMAN                     | 601567403F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3842280 5'  |
| 4998                   | 18127                 | 31103             | 6.22                 | 1.4E-02                                       | BE733142.1               | EST_HUMAN                     | 601567403F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3842280 5'  |
| 5911                   | 26210                 |                   | 0.74                 | 1.4E-02                                       | X01338.1                 | NT                            | H. sapiens LaSS-B pseudogene 3   |
| 6545                   | 19707                 | 33083             | 4.52                 | 1.4E-02                                       | AA55030.1                | EST_HUMAN                     | nt11c04.s1 NCI_CGAP_Br2 Homo sapiens cDNA clone IMAGE:1029890 3' similar to contains Alu repetitive element  |
| 6545                   | 19707                 | 33084             | 4.52                 | 1.4E-02                                       | AA55030.1                | EST_HUMAN                     | nt11c04.s1 NCI_CGAP_Br2 Homo sapiens cDNA clone IMAGE:1029890 3' similar to contains Alu repetitive element  |
| 8333                   | 21416                 |                   | 1.55                 | 1.4E-02                                       | AL022073.1               | NT                            | Mycobacterium tuberculosis H37Rv complete genome, segment 88/162   |
| 9099                   | 22178                 | 35722             | 1.44                 | 1.4E-02                                       | M81702.1                 | NT                            | Candida boidinii methanol oxidase (AOD1) gene, complete cds  |
| 9356                   | 22431                 | 35989             | 1.41                 | 1.4E-02                                       | AJ27285.1                | NT                            | Homo sapiens SPP2 gene for secreted phosphoprotein 24 precursor, exons 1-8   |
| 9600                   | 22855                 | 36227             | 1.66                 | 1.4E-02                                       | BE544561.1               | EST_HUMAN                     | 601078239F1 NIH_MGC_12 Homo sapiens cDNA clone IMAGE:3484241 5'  |
| 10780                  | 23813                 |                   | 0.89                 | 1.4E-02                                       | AL163216.2               | NT                            | Homo sapiens chromosome 21 segment HS21C018  |
| 12268                  | 25104                 | 38358             | 8.95                 | 1.4E-02                                       | X00459.1                 | NT                            | Human IFNAR gene for interferon alpha/beta receptor  |
| 12840                  | 25430                 |                   | 1.84                 | 1.4E-02                                       | AF324985.1               | NT                            | Arabidopsis thaliana F21J6.2 mRNA, complete cds  |
| 12858                  | 25625                 |                   | 1.45                 | 1.4E-02                                       | 11426858                 | NT                            | Homo sapiens sperm associated antigen 7 (SPAG7), mRNA  |
| 13075                  | 25704                 |                   | 1.51                 | 1.4E-02                                       | AF238059.2               | NT                            | Rheum x cultorum NADH dehydrogenase subunit F (ndhF) gene, partial cds; chloroplast gene for chloroplast product   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 1913                   | 15058                 |                   | 1.19                 | 1.3E-02                                       | BE739283.1               | EST_HUMAN                     | 601666462F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:3928335 5'   |
| 2010                   | 15150                 | 28254             | 2.13                 | 1.3E-02                                       | AL163201.2               | NT                            | Homo sapiens chromosome 21, segment HS21C001  |
| 2512                   | 15638                 | 28769             | 0.98                 | 1.3E-02                                       | AE002445.1               | NT                            | Neisseria meningitidis serogroup B strain MC58 section 87 of 208 of the complete genome   |
| 3285                   | 16459                 | 29479             | 2.41                 | 1.3E-02                                       | BF697081.1               | EST_HUMAN                     | 602120475F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:4286203 5'   |
| 3285                   | 16459                 | 29480             | 2.41                 | 1.3E-02                                       | BF697081.1               | EST_HUMAN                     | 602120475F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:4286203 5'   |
| 4078                   | 17232                 |                   | 1.22                 | 1.3E-02                                       | AF189288.1               | NT                            | Mus musculus beta-sarcoglycan gene, complete cds  |
| 6276                   | 18394                 |                   | 3.02                 | 1.3E-02                                       | D26547.1                 | NT                            | Rice gene for thiorodotin h, complete cds   |
| 6360                   | 18503                 | 31478             | 1.61                 | 1.3E-02                                       | AL049888.2               | NT                            | Mus musculus chromosome X contigB; X-linked lymphocyte regulated 5 gene, Zinc finger protein 276, Zinc finger protein 92, mmxap28orf  |
| 5390                   | 18503                 | 31479             | 1.61                 | 1.3E-02                                       | AL049888.2               | NT                            | Mus musculus chromosome X contigB; X-linked lymphocyte regulated 5 gene, Zinc finger protein 276, Zinc finger protein 92, mmxap28orf  |
| 6293                   | 19486                 | 32810             | 1.2                  | 1.3E-02                                       | U80017.1                 | NT                            | Homo sapiens basic transcription factor 2 p44 (btf2p44) gene, partial cds, neuronal apoptosis inhibitory protein (nrip) and survival motor neuron protein (smn) genes, complete cds |
| 6327                   | 19489                 | 32858             | 1.05                 | 1.3E-02                                       | M62982.1                 | NT                            | G.reinhardtii ribulose 1,5-bisphosphate carboxylase/oxygenase mfrNA, complete cds   |
| 7101                   | 18528                 | 31481             | 1.3                  | 1.3E-02                                       | AL161546.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 46   |
| 7101                   | 18528                 | 31482             | 1.3                  | 1.3E-02                                       | AL161546.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 46   |
| ~7752                  | 20812                 | 34303             | 4.9                  | 1.3E-02                                       | AI031593.1               | EST_HUMAN                     | aw03g05.x1 Soares_parathyroid_tumor_NbHPA Homo sapiens cDNA clone IMAGE:1646072 3' similar to contains Alu repetitive element   |
| 8678                   | 21768                 | 35234             | 1.67                 | 1.3E-02                                       | AF156961.1               | NT                            | Homo sapiens human endogenous retrovirus W gagCS.37 G gag (gag) gene, complete cds  |
| 10411                  | 23446                 | 37051             | 1.89                 | 1.3E-02                                       | M63707.1                 | NT                            | Mouse kidney androgen-regulated protein (KAP) gene, complete cds  |
| 10485                  | 23520                 | 37129             | 0.85                 | 1.3E-02                                       | AE001304.1               | NT                            | Chlamydia trachomatis section 31 of 87 of the complete genome   |
| 11239                  | 24308                 | 37944             | 3.35                 | 1.3E-02                                       | AW268563.1               | EST_HUMAN                     | xs04e03.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2815036 3'   |
| 11239                  | 24308                 | 37945             | 3.35                 | 1.3E-02                                       | AW268563.1               | EST_HUMAN                     | xs04e03.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2815036 3'   |
| 12845                  | 26127                 |                   | 1.7                  | 1.3E-02                                       | Z89117.1                 | NT                            | Bacillus subtilis complete genome (section 14 of 21): from 2539451 to 2812870   |
| 12763                  | 25489                 |                   | 2.56                 | 1.3E-02                                       | 9633069                  | NT                            | Human herpesvirus 6B, complete genome   |
| 12965                  | 25885                 |                   | 30.16                | 1.3E-02                                       | AF162238.1               | NT                            | Homo sapiens V1b vespressin receptor (VPR3) gene, complete cds  |
| 219                    | 19441                 |                   | 0.82                 | 1.2E-02                                       | X87944.1                 | NT                            | H.sapiens DMA, DMB, HLA-Z1, iPP2, LMP2, TAP1, LMP7, DOB, DOB2 and RING8, 8, 13 and 14 genes   |
| 366                    | 19576                 | 26606             | 4.38                 | 1.2E-02                                       | AA059239.1               | EST_HUMAN                     | zf65g01.r1 Soares retina N2b4HR Homo sapiens cDNA clone IMAGE:381840 5' similar to contains element L1 repetitive element;  |
| 495                    | 19690                 | 26696             | 1.43                 | 1.2E-02                                       | P36898                   | SWISSPROT                     | HYPOTHETICAL 17.1 KD PROTEIN IN PUR5 3'REGION   |
| 767                    | 19838                 | 26983             | 2.67                 | 1.2E-02                                       | AI183522.1               | EST_HUMAN                     | qd68a12.x1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:1734670 3' similar to contains L1.L1.L1 repetitive element;  |
| 2246                   | 15379                 | 28507             | 2.03                 | 1.2E-02                                       | AL163213.2               | NT                            | Homo sapiens chromosome 21 segment HS21C013   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 2514                   | 15840                 | 28762             | 1.02                 | 1.2E-02                                       | AW172350.1               | EST_HUMAN                     | x37609.x1 Soares_NFL_T_GBC S1 Homo sapiens cDNA clone IMAGE:2659432 3'   |
| 2701                   | 15840                 | 28762             | 1.43                 | 1.2E-02                                       | AW172350.1               | EST_HUMAN                     | x37609.x1 Soares_NFL_T_GBC S1 Homo sapiens cDNA clone IMAGE:2659432 3'   |
| 3170                   | 16346                 |                   | 7.3                  | 1.2E-02                                       | AA075418.1               | EST_HUMAN                     | zm88603.11 Stragene ovarian cancer (#837219) Homo sapiens cDNA clone IMAGE:646020 6'   |
| 3359                   | 16531                 | 28545             | 2.05                 | 1.2E-02                                       | R62805.1                 | EST_HUMAN                     | y111508.s1 Soares placenta Nb2HP Homo sapiens cDNA clone IMAGE:198803 3'   |
| 3362                   | 16534                 | 28548             | 0.59                 | 1.2E-02                                       | A1686894.1               | EST_HUMAN                     | zb88607.x5 Soares_fetal_lung_NbHL19W Homo sapiens cDNA clone IMAGE:308532 3' similar to contains element MER22 repetitive element;   |
| 5035                   | 18163                 | 31139             | 2.02                 | 1.2E-02                                       | U91328.1                 | NT                            | Human hereditary haemochromatosis region, histone 2A-like protein gene, hereditary haemochromatosis (HLA-H) gene, RoRet gene, and sodium phosphate transporter (NP13) gene, complete cds                                 |
| 5154                   | 18278                 |                   | 1.97                 | 1.2E-02                                       | AB019786.1               | NT                            | Cynops pyrrhogaster CpUbiq1 mRNA, partial cds  |
| 5195                   | 18317                 | 31286             | 1.31                 | 1.2E-02                                       | AV731704.1               | EST_HUMAN                     | AV731704 HTF Homo sapiens cDNA clone HTFBHG11 5'   |
| 5871                   | 19061                 | 32368             | 1.78                 | 1.2E-02                                       | D78589.1                 | NT                            | Rana rugosa mRNA for calreticulin, complete cds  |
| 6243                   | 19417                 | 32766             | 0.72                 | 1.2E-02                                       | AF045555.1               | NT                            | Homo sapiens wbcx1 (WBCSR1) and wbcx5 (WBCSR6) genes, complete cds, alternatively spliced and replication factor C subunit 2 (RFC2) gene, complete cds   |
| 7147                   | 20282                 | 33724             | 8.67                 | 1.2E-02                                       | AF175412.1               | NT                            | Mus musculus DNA methyltransferase (Dnmt1) gene, exons 2, 3, 4, and 5  |
| 7443                   | 20520                 | 33983             | 1.42                 | 1.2E-02                                       | H02197.1                 | EST_HUMAN                     | y34h12.s1 Soares placenta Nb2HP Homo sapiens cDNA clone IMAGE:150695 3'  |
| 7465                   | 20540                 | 34014             | 8.54                 | 1.2E-02                                       | AV732093.1               | EST_HUMAN                     | AV732093 HTF Homo sapiens cDNA clone HTFBJC09 5'   |
| 7729                   | 20791                 | 34280             | 0.66                 | 1.2E-02                                       | BF216850.1               | EST_HUMAN                     | 601882b49f.1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:4095253 5'   |
| 8186                   | 21268                 | 34792             | 2.3                  | 1.2E-02                                       | Q11205                   | SWISSPROT                     | CMP-N-ACETYLNEURAMINATE-BETA-GALACTOSAMIDE-ALPHA-2,3-SIALYLTRANSFERASE (BETA-GALACTOSIDE ALPHA-2,3-SIALYLTRANSFERASE) (ALPHA 2,3-ST) (GAL-NAC6S) (GAL-BETA-1,3-GALNAC-ALPHA-2,3-SIALYLTRANSFERASE) (ST3GALA.2) (SIAT4-B) |
| 8321                   | 21403                 | 34928             | 0.56                 | 1.2E-02                                       | R68831.1                 | EST_HUMAN                     | y4306.s1 Soares placenta Nb2HP Homo sapiens cDNA clone IMAGE:142019 3'   |
| 8321                   | 21403                 | 34930             | 0.56                 | 1.2E-02                                       | R68831.1                 | EST_HUMAN                     | y4306.s1 Soares placenta Nb2HP Homo sapiens cDNA clone IMAGE:142019 3'   |
| 8386                   | 21467                 | 34993             | 1.22                 | 1.2E-02                                       | AF193612.1               | NT                            | Homo sapiens fringe protein mRNA, partial cds  |
| 8386                   | 21467                 | 34994             | 1.22                 | 1.2E-02                                       | AF193612.1               | NT                            | Homo sapiens fringe protein mRNA, partial cds  |
| 9091                   | 22170                 |                   | 1                    | 1.2E-02                                       | T76887.1                 | EST_HUMAN                     | y172c08.s1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:113774 3'   |
| 9839                   | 22379                 | 38481             | 2.54                 | 1.2E-02                                       | AB031013.1               | NT                            | Norwalk-like virus group 2 gene for capsid protein, complete cds   |
| 9872                   | 22912                 | 38497             | 1.24                 | 1.2E-02                                       | AJ246003.1               | NT                            | Homo sapiens Speet gene for speeth protein   |
| 12757                  | 25986                 |                   | 1.16                 | 1.2E-02                                       | P17139                   | SWISSPROT                     | COLLAGEN ALPHA 1(IV) CHAIN PRECURSOR   |
| 12974                  | 25834                 |                   | 6.24                 | 1.2E-02                                       | C18119.1                 | EST_HUMAN                     | C18119 Human placenta cDNA (Tfujwre) Homo sapiens cDNA clone GEN-557G08 5'   |
| 1298                   | 14454                 | 27620             | 1.22                 | 1.1E-02                                       | AA070364.1               | EST_HUMAN                     | zm88611.s1 Stragene neuroepithelium (#837231) Homo sapiens cDNA clone IMAGE:530924 3'  |
| 1743                   | 14892                 | 27886             | 1.48                 | 1.1E-02                                       | X76491.1                 | NT                            | H.sapiens LIPA gene, exon 4  |
| 1743                   | 14892                 | 27887             | 1.48                 | 1.1E-02                                       | X76491.1                 | NT                            | H.sapiens LIPA gene, exon 4  |
| 2098                   | 15236                 | 28357             | 5.35                 | 1.1E-02                                       | BF345283.1               | EST_HUMAN                     | 602018037F.1 NC1_CGAP_Brn67 Homo sapiens cDNA clone IMAGE:4153808 5'   |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 2942                   | 16119                 |                   | 5.31                 | 1.1E-02                                       | N98523.1                 | EST_HUMAN                     | z140d05.r1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:285040 5'  |
| 3812                   | 16776                 | 29792             | 3.59                 | 1.1E-02                                       | A085308.1                | EST_HUMAN                     | iq9b10.x1 NCI_CGAP_OV23 Homo sapiens cDNA clone IMAGE:2218539 3' similar to SW.XPF_HUMAN  |
| 4222                   | 17370                 |                   | 0.86                 | 1.1E-02                                       | AW813798.1               | EST_HUMAN                     | Q82889 DNA-REPAIR PROTEIN COMPLEMENTING XP-F CELL ;   |
| 4651                   | 18061                 | 31057             | 1.27                 | 1.1E-02                                       | AL048383.2               | EST_HUMAN                     | RC3-ST0197-120200-015-g11 ST0197 Homo sapiens cDNA  |
|                        |                       |                   |                      |   |                          |                               | DKF7z588E092A_s1 586 (synonym: hute1) Homo sapiens cDNA clone DKF7z588E092A   |
|                        |                       |                   |                      |   |                          |                               | Bacillus subtilis SpoVK (spoVK), YnbA (ynbA), YnbB (ynbB), GlnR (glnR), glutamine synthetase (glnA), YnaA (ynaA), YnaB (ynab), YnaC (ynac), YnaD (ynad), YnaE (ynae), YnaF (ynaf), YnaG (ynag), YnaH (ynah), YnaI (ynai), YnaJ (ynaj), YnaK (ynak), YnaL (ynal), YnaM (ynam), YnaN (ynan), YnaO (ynao), YnaP (ynap), YnaQ (ynaq), YnaR (ynar), YnaS (ynas), YnaT (ynat), YnaU (ynau), YnaV (ynav), YnaW (ynaw), YnaX (ynax), YnaY (ynay), YnaZ (ynaz) |
| 6277                   | 19481                 | 32800             | 0.89                 | 1.1E-02                                       | U69480.1                 | NT                            | RC1-HT0256-100300-016-h07 HT0256 Homo sapiens cDNA  |
| 7773                   | 20830                 | 34321             | 2.19                 | 1.1E-02                                       | BE148611.1               | EST_HUMAN                     | Melanogpus sanguinipes entomopoxvirus, complete genome  |
| 7909                   | 21039                 | 34561             | 1.25                 | 1.1E-02                                       | 8631294                  | NT                            | METALLOTHIONEIN (MT-1/MT-2)   |
| 8451                   | 21532                 | 35061             | 0.46                 | 1.1E-02                                       | P80394                   | SWISSPROT                     | METALLOTHIONEIN (MT-1/MT-2)   |
| 8451                   | 21532                 | 35062             | 0.46                 | 1.1E-02                                       | P80394                   | SWISSPROT                     | QV3-BN0045-220300-128-h02 BN0046 Homo sapiens cDNA  |
| 8841                   | 21620                 | 35458             | 0.89                 | 1.1E-02                                       | AW898180.1               | EST_HUMAN                     | C04803 Human heart cDNA (Ynakamura) Homo sapiens cDNA clone 3NHC4040  |
| 9022                   | 22101                 | 35641             | 0.7                  | 1.1E-02                                       | C04803.1                 | EST_HUMAN                     | NEUROGENIC LOCUS NOTCH 3 PROTEIN  |
| 9103                   | 22182                 | 35727             | 7.44                 | 1.1E-02                                       | Q81982                   | SWISSPROT                     |   |
| 10133                  | 23171                 | 36769             | 2.02                 | 1.1E-02                                       | AA082578.1               | EST_HUMAN                     | z124a01.r1 Stratiene neuroepithelium NT2RAMI 937234 Homo sapiens cDNA clone IMAGE:548328 5'   |
| 10299                  | 23334                 | 36839             | 4.06                 | 1.1E-02                                       | AA314865.1               | EST_HUMAN                     | EST188494 Colon carcinoma (HCC) cell line II Homo sapiens cDNA 5' end   |
| 11224                  | 24293                 | 37634             | 2.41                 | 1.1E-02                                       | 11435505                 | NT                            | Homo sapiens T-box 6 (TBX5), mRNA   |
| 12185                  | 25182                 |                   |                      |   |                          |                               | ab77711.1 Stratiene fetal retina 937202 Homo sapiens cDNA clone IMAGE:853005 3' similar to contains   |
| 7                      | 13245                 | 26247             | 4.01                 | 1.1E-02                                       | AA688289.1               | EST_HUMAN                     | Alu repetitive element  |
| 1552                   | 14705                 | 27785             | 8.82                 | 1.0E-02                                       | AW849120.1               | EST_HUMAN                     | MR3-CT0176-111099-003-s10 CT0176 Homo sapiens cDNA  |
| 2638                   | 16761                 |                   | 0.97                 | 1.0E-02                                       | AW368128.1               | EST_HUMAN                     | CM2-HT0177-041099-017-H12 HT0177 Homo sapiens cDNA  |
| 3159                   | 16334                 | 28344             | 1.71                 | 1.0E-02                                       | AA806389.1               | EST_HUMAN                     | cc22h08.s1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:1350495 3'   |
| 3336                   | 16509                 | 28825             | 2.88                 | 1.0E-02                                       | BE835558.1               | EST_HUMAN                     | RC0-FN0025-250500-021-402 FN0025 Homo sapiens cDNA  |
| 3598                   | 16762                 |                   | 1.24                 | 1.0E-02                                       | BE988998.1               | EST_HUMAN                     | 601849887R1 NIH_MGC_74 Homo sapiens cDNA clone IMAGE:3833689 3'   |
| 3986                   | 17143                 | 30148             | 0.7                  | 1.0E-02                                       | AW845621.1               | EST_HUMAN                     | MR0-CT0060-081099-003-H10 GT0060 Homo sapiens cDNA  |
| 4002                   | 17159                 | 30165             | 0.85                 | 1.0E-02                                       | A065086.1                | EST_HUMAN                     | HA0921 Human fetal liver cDNA library Homo sapiens cDNA   |
| 4899                   | 18029                 | 31017             | 0.59                 | 1.0E-02                                       | AL163302.2               | NT                            | Homo sapiens chromosome 21 segment HS21C102   |
| 4989                   | 18098                 | 31074             | 5                    | 1.0E-02                                       | 6753521                  | NT                            | Mus musculus corticotropin releasing hormone receptor 2 (Chr2), mRNA  |
| 5116                   | 18243                 | 31208             | 4.14                 | 1.0E-02                                       | R06567.1                 | EST_HUMAN                     | yc54h01.r1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:196833 5'  |
| 5242                   | 18364                 | 31332             | 0.83                 | 1.0E-02                                       | AL161593.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 89   |
| 5632                   | 18729                 | 31745             | 1.96                 | 1.0E-02                                       | P06599                   | SWISSPROT                     | EXTENSIN PRECURSOR  |
|                        |                       |                   | 0.81                 | 1.0E-02                                       | H52681.1                 | EST_HUMAN                     | yc36h11.r1 Soares ovary tumor NBHOT Homo sapiens cDNA clone IMAGE:235941 5'   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 5865                   | 18055                 | 32382             | 0.68                 | 1.0E-02                                       | AF309388.1               | NT                            | Mus musculus transcription complex subunit NF-A To4 (Nfat4) gene, exons 1 and 2  |
| 6242                   | 19416                 | 32784             | 1.28                 | 1.0E-02                                       | AF257303.1               | NT                            | Mus musculus synaptotagmin II (Sy2) gene, complete cds   |
| 6310                   | 19482                 | 32836             | 2.78                 | 1.0E-02                                       | AW577113.1               | EST_HUMAN                     | MR4-BT0356-070100-201-h01 BT0356 Homo sapiens cDNA   |
| 6310                   | 19482                 | 32837             | 2.78                 | 1.0E-02                                       | AW577113.1               | EST_HUMAN                     | MR4-BT0356-070100-201-h01 BT0356 Homo sapiens cDNA   |
| 6801                   | 20216                 | 33846             | 1.69                 | 1.0E-02                                       | Z29842.1                 | NT                            | Z.mays U3snRNA pseudogene  |
| 8483                   | 22848                 | 36219             | 6.34                 | 1.0E-02                                       | BF036331.1               | EST_HUMAN                     | 601465670F1 NIH_MGC_66 Homo sapiens cDNA clone IMAGE:3863177 5'  |
| 8593                   | 22848                 | 36220             | 6.34                 | 1.0E-02                                       | BF036331.1               | EST_HUMAN                     | 601465670F1 NIH_MGC_66 Homo sapiens cDNA clone IMAGE:3863177 5'  |
| 11542                  | 24598                 |                   | 2.12                 | 1.0E-02                                       | AF157589.1               | NT                            | Orithidia fasciculata 27 kDa guinea RNA-binding protein mRNA, complete cds; mitochondrial gene for mitochondrial product |
| 11573                  | 24828                 |                   | 1.7                  | 1.0E-02                                       | A1417961.1               | EST_HUMAN                     | tg5507.x1 NCL CGAP_P128 Homo sapiens cDNA clone IMAGE:2112733 3' similar to gb:X15183_cds1                               |
| 11649                  | 24728                 | 38420             | 1.85                 | 1.0E-02                                       | AV760016.1               | EST_HUMAN                     | HEAT SHOCK PROTEIN HSP 90-ALPHA (HUMAN); contains Alu repetitive element; contains element MER5                          |
| 12278                  | 26206                 |                   | 1.76                 | 1.0E-02                                       | Q62203                   | SWISSPROT                     | repetitive element   |
| 12339                  | 26941                 | 31782             | 3.58                 | 1.0E-02                                       | AW935521.1               | EST_HUMAN                     | SPICEOSOME ASSOCIATED PROTEIN 62 (SAP 62) (SPLICING FACTOR 3A SUBUNIT 2) (SF3A66)  |
| 12355                  | 28002                 |                   | 4.31                 | 1.0E-02                                       | S70330.1                 | NT                            | RC2-DT0007-120200-016-h02 DT0007 Homo sapiens cDNA   |
| 12764                  | 25974                 |                   | 1.4                  | 1.0E-02                                       | AJ276505.1               | NT                            | Homo sapiens renal dipeptidase (RDP) gene, complete cds  |
| 12849                  | 26060                 |                   | 2.81                 | 1.0E-02                                       | X82654.1                 | NT                            | Mus musculus genomic fragment, 279 Kb, chromosome 7  |
| 916                    | 14091                 | 27156             | 5.69                 | 9.0E-03                                       | A1796128.1               | EST_HUMAN                     | H.sapiens gene for Me487/CD63 antigen  |
| 1283                   | 14449                 |                   | 1.66                 | 9.0E-03                                       | BE781880.1               | EST_HUMAN                     | WH2008.x1 NCL CGAP_Kid11 Homo sapiens cDNA clone IMAGE:2383433 3' similar to contains element                            |
| 2468                   | 15586                 | 28721             | 2.64                 | 9.0E-03                                       | AL161592.2               | NT                            | MER22 MER22 repetitive element   |
| 2871                   | 16147                 | 29185             | 0.81                 | 9.0E-03                                       | AI251744.1               | EST_HUMAN                     | 601470242F1 NIH_MGC_67 Homo sapiens cDNA clone IMAGE:3873346 5'  |
| 2871                   | 16147                 | 29186             | 0.81                 | 9.0E-03                                       | AI251744.1               | EST_HUMAN                     | Arabidopsis thaliana DNA chromosome 4, coding fragment No. 59  |
| 3758                   | 16819                 | 28821             | 0.88                 | 9.0E-03                                       | J05184.1                 | NT                            | q180709.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:1854281 3'  |
| 5831                   | 18117                 |                   | 1.19                 | 9.0E-03                                       | AI809792.1               | EST_HUMAN                     | q180709.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:1854281 3'  |
| 6768                   | 19322                 |                   | 4.01                 | 9.0E-03                                       | BE746988.1               | EST_HUMAN                     | S.saccharosus thermoplasma gene, complete cds  |
| 7623                   | 20983                 | 34168             | 0.61                 | 9.0E-03                                       | AI242219.1               | EST_HUMAN                     | w77704.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2361631 3'   |
| 7640                   | 20709                 | 34188             | 0.91                 | 9.0E-03                                       | 8822570                  | NT                            | 601573438F1 NIH_MGC_9 Homo sapiens cDNA clone IMAGE:3834752 5'   |
| 8059                   | 21142                 |                   | 0.8                  | 9.0E-03                                       | AL038991.1               | EST_HUMAN                     | q187c12.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:1853874 3'  |
| 8443                   | 21524                 |                   | 0.54                 | 9.0E-03                                       | AF223391.1               | NT                            | Homo sapiens hypothetical protein FLJ10650 (FLJ10650), mRNA  |
| 10050                  | 23088                 | 36650             | 0.54                 | 9.0E-03                                       | P28011                   | SWISSPROT                     | DKFZp434L0412_r1 434 (synonym: hras3) Homo sapiens cDNA clone DKFZp434L0412 5'   |
| 10068                  | 23104                 | 36707             | 1.47                 | 9.0E-03                                       | P20908                   | SWISSPROT                     | Homo sapiens calcium channel alpha1E subunit (CACNA1E) gene, exons 7-49, and partial cds, alternatively spliced          |
|                        |                       |                   |                      |   |                          |                               | INTEGRIN BETA-7 PRECURSOR (INTEGRIN BETA-P) (M290 IEL ANTIGEN)   |
|                        |                       |                   |                      |   |                          |                               | COLLAGEN ALPHA 1(V) CHAIN PRECURSOR  |

Page 176 of 550  
Table 4  
Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 11232                  | 24301                 |                   | 1.68                 | 9.0E-03                                       | Y18000.1                 | NT                            | Homo sapiens NF2 gene   |
| 11951                  | 24937                 | 38638             | 1.31                 | 9.0E-03                                       | L11144.1                 | NT                            | Homo sapiens preproglutinin (GAL1) gene, exons 1, 2, and 3  |
| 11951                  | 24937                 | 38639             | 1.31                 | 9.0E-03                                       | L11144.1                 | NT                            | Homo sapiens preproglutinin (GAL1) gene, exons 1, 2, and 3  |
| 12494                  | 26208                 |                   | 2.07                 | 9.0E-03                                       | BF351141.1               | EST_HUMAN                     | PM1-HT0452-291299-001-e09 HT0452 Homo sapiens cDNA  |
| 12722                  | 26200                 |                   | 37.58                | 9.0E-03                                       | BE348385.1               | EST_HUMAN                     | hw17609.x1 NCI_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3183181 3'   |
| 12838                  | 25558                 | 32016             | 1.21                 | 9.0E-03                                       | AL163267.2               | NT                            | Homo sapiens chromosome 21 segment HS21C087   |
| 13074                  | 25703                 |                   | 17.6                 | 9.0E-03                                       | BF351141.1               | EST_HUMAN                     | PM1-HT0452-291299-001-e09 HT0452 Homo sapiens cDNA  |
| 514                    | 13708                 |                   | 3.16                 | 8.0E-03                                       | AAT23007.1               | EST_HUMAN                     | zh30e03.s1 Soares_pituitary_gland_N3H1PG Homo sapiens cDNA clone IMAGE:413698 3' similar to contains  |
| 1013                   | 14185                 | 27246             | 12.69                | 8.0E-03                                       | AF109658.1               | NT                            | Alu repetitive element  |
| 2226                   | 16360                 | 28489             | 1.87                 | 8.0E-03                                       | AL163263.2               | NT                            | Homo sapiens adenylsuccinate lyase gene, complete cds   |
| 2017                   | 15741                 | 28853             | 3.06                 | 8.0E-03                                       | P10266                   | SWISSPROT                     | Homo sapiens chromosome 21 segment HS21C083   |
| 3442                   | 16610                 | 26626             | 1.02                 | 8.0E-03                                       | AJ131016.1               | NT                            | RETROVIRUS-RELATED POL POLYPROTEIN [CONTAINS: REVERSE TRANSCRIPTASE; ENDOUCLEASE]   |
| 3768                   | 16627                 | 26630             | 1.81                 | 8.0E-03                                       | P32844                   | SWISSPROT                     | Homo sapiens SCL gene locus   |
| 3768                   | 16627                 | 26631             | 1.81                 | 8.0E-03                                       | P32844                   | SWISSPROT                     | HYPOTHETICAL 127.0 KD PROTEIN IN RAD24-BMH1 INTERGENIC REGION   |
| 4372                   | 17515                 | 30495             | 1.15                 | 8.0E-03                                       | BE840049.1               | EST_HUMAN                     | HYPOTHETICAL 127.0 KD PROTEIN IN RAD24-BMH1 INTERGENIC REGION   |
| 4502                   | 17642                 | 30627             | 6.73                 | 8.0E-03                                       | BF363327.1               | EST_HUMAN                     | QV0-FN0181-140700-304-g10 FN0181 Homo sapiens cDNA  |
| 4839                   | 17972                 | 30961             | 0.63                 | 8.0E-03                                       | P03181                   | SWISSPROT                     | GM4-NN0119-300800-223-b05 NN0119 Homo sapiens cDNA  |
| 4839                   | 17972                 | 30962             | 0.63                 | 8.0E-03                                       | P03181                   | SWISSPROT                     | HYPOTHETICAL BHLF1 PROTEIN  |
| 5271                   | 18390                 | 31358             | 0.94                 | 8.0E-03                                       | AU140261.1               | EST_HUMAN                     | HYPOTHETICAL BHLF1 PROTEIN  |
| 5640                   | 18834                 | 31911             | 2.8                  | 8.0E-03                                       | AF110520.1               | NT                            | AU140261 PLACE2 Homo sapiens cDNA clone PLACE2000223 5'   |
| 6328                   | 25823                 | 32857             | 1.27                 | 8.0E-03                                       | AP000002.1               | NT                            | Mus musculus major histocompatibility complex region NG27, NG28, RPS28, NADH oxidoreductase, NG29, KIFC1, Fas-binding protein, BNG1, tapasin, RadGDS-like, KE2, BING4, beta 1,3-galactosyl transferase, and |
| 6889                   | 20041                 | 33450             | 4.4                  | 8.0E-03                                       | P55577                   | SWISSPROT                     | RPS18 genes, complete cds; Sacm21 gene, partial   |
| 7068                   | 20112                 |                   | 1.06                 | 8.0E-03                                       | V01109.1                 | NT                            | Pyrococcus horikoshii OT3 genomic DNA, 287001-544000 nt position (277)  |
| 7357                   | 20436                 | 33888             | 1.43                 | 8.0E-03                                       | M17197.1                 | NT                            | PROBABLE PEPTIDASE Y4NA   |
| 7714                   | 20779                 |                   | 1.8                  | 8.0E-03                                       | AB038267.1               | NT                            | Human BK virus (strain MM) genome. (Closely related to SV40.)   |
| 9084                   | 22163                 | 35707             | 0.64                 | 8.0E-03                                       | P98160                   | SWISSPROT                     | A. californica (marine gastropod mollusc) neuro-peptide gene (bag cell), exon 1, 5' end   |
| 9111                   | 22190                 | 35734             | 3.53                 | 8.0E-03                                       | AW808692.1               | EST_HUMAN                     | Tursiops truncatus mRNA for p40-phox, complete cds  |
| 9180                   | 22258                 | 35801             | 0.68                 | 8.0E-03                                       | 97899561                 | NT                            | BASEMENT MEMBRANE-SPECIFIC HEPARAN SULFATE PROTEOGLYCAN CORE PROTEIN  |
| 10154                  | 23191                 |                   | 4.75                 | 8.0E-03                                       | BE086509.1               | EST_HUMAN                     | PRECURSOR (HSPG) (PERLECAN) (PLC)   |
|                        |                       |                   |                      |   |                          |                               | MP1-ST0111-111189-011-108 ST0111 Homo sapiens cDNA  |
|                        |                       |                   |                      |   |                          |                               | Mus musculus fusion 2 (human) (Fus2), mRNA  |
|                        |                       |                   |                      |   |                          |                               | QV1-BT0677-040400-131-g03 BT0677 Homo sapiens cDNA  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 11005                  | 24084                 | 37721             | 2.01                 | 8.0E-03                                       | BE788441.1               | EST_HUMAN                     | 601475619F1 NIH_MGC_68 Homo sapiens cDNA clone IMAGE:3878405 5'   |
| 11231                  | 24300                 |                   | 2.78                 | 8.0E-03                                       | Z49632.1                 | NT                            | S.cerevisiae chromosome X reading frame ORF YJR152w   |
| 11683                  | 24742                 | 38433             | 1.38                 | 8.0E-03                                       | AA828817.1               | EST_HUMAN                     | cd80a09.s1 NCL_CGAP_Ov2 Homo sapiens cDNA clone IMAGE:1374232   |
| 11683                  | 24742                 | 38434             | 1.39                 | 8.0E-03                                       | AA828817.1               | EST_HUMAN                     | cd80a09.s1 NCL_CGAP_Ov2 Homo sapiens cDNA clone IMAGE:1374232   |
| 12015                  | 24899                 | 38701             | 4.37                 | 8.0E-03                                       | AF064598.1               | NT                            | Homo sapiens melanoma-associated antigen (MAGE-C1) gene, complete cds   |
| 12205                  | 25159                 |                   | 1.89                 | 8.0E-03                                       | AF68035.1                | NT                            | Oryctolagus cuniculus eIF-2a kinase mRNA, complete cds  |
| 12252                  | 25181                 |                   | 7.14                 | 8.0E-03                                       | AB038181.1               | NT                            | Homo sapiens ABCG1 gene for ABC transporter (ATP-binding cassette, sub-family G (WHITE), member 1), complete cds                    |
| 13145                  | 25959                 |                   | 1.16                 | 8.0E-03                                       | AI277808.1               | EST_HUMAN                     | qir56a09.x1 Soares_placenta_6to6weeks_2Nbl-IP8x6W Homo sapiens cDNA clone IMAGE:1882762 3'  |
| 712                    | 13894                 | 26930             | 12.35                | 7.0E-03                                       | AF097183.1               | NT                            | Cryptosporidium parvum HC-10 gene, complete cds   |
| 712                    | 13894                 | 26931             | 12.35                | 7.0E-03                                       | AF097183.1               | NT                            | Cryptosporidium parvum HC-10 gene, complete cds   |
| 989                    | 14170                 | 27231             | 3.26                 | 7.0E-03                                       | AF243376.1               | NT                            | Glycine max glutathione S-transferase GST 21 mRNA, partial cds  |
| 1140                   | 14305                 | 27361             | 3.55                 | 7.0E-03                                       | AV731712.1               | EST_HUMAN                     | AV731712 HTF Homo sapiens cDNA clone HTFAZF-10 5'   |
| 1395                   | 14549                 |                   | 1.03                 | 7.0E-03                                       | Q61060                   | SWISSPROT                     | FORKHEAD BOX PROTEIN D3 (HNF3/FH TRANSCRIPTION FACTOR GENESIS) (HEPATOCYTE NUCLEAR FACTOR 3 FORKHEAD HOMOLOG 2) (HFH-2)             |
| 1428                   | 14880                 | 27653             | 3.39                 | 7.0E-03                                       | AA688298.1               | EST_HUMAN                     | ab79609.s1 Stratigene fetal retina B37202 Homo sapiens cDNA clone IMAGE:853145 3'   |
| 1632                   | 14885                 | 27764             | 3.28                 | 7.0E-03                                       | AW303599.1               | EST_HUMAN                     | xx21b02.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2813739 3'   |
| 2332                   | 16060                 | 28598             | 2                    | 7.0E-03                                       | P04929                   | SWISSPROT                     | HISTIDINE-RICH GLYCOPROTEIN PRECURSOR   |
| 2635                   | 15815                 |                   | 0.98                 | 7.0E-03                                       | AW772132.1               | EST_HUMAN                     | hm57h07.x1 NCL_CGAP_Kd11 Homo sapiens cDNA clone IMAGE:3032869 3' similar to contains Alu repetitive element                        |
| 3848                   | 16811                 | 28824             | 0.85                 | 7.0E-03                                       | AI150273.1               | EST_HUMAN                     | qf24H02.x1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:1751955 3'   |
| 3863                   | 17023                 | 30022             | 0.71                 | 7.0E-03                                       | AW444463.1               | EST_HUMAN                     | UIH-B18-akb-c-10-Q-UI.s1 NCL_CGAP_Sub5 Homo sapiens cDNA clone IMAGE:2733691 3'   |
| 3814                   | 17073                 | 30071             | 1.13                 | 7.0E-03                                       | AF198344.1               | NT                            | Rattus norvegicus neuronal nicotinic acetylcholine receptor subunit (Alpha10) mRNA, complete cds                                    |
| 4128                   | 17023                 | 30022             | 0.77                 | 7.0E-03                                       | AW444463.1               | EST_HUMAN                     | UIH-B18-akb-c-10-Q-UI.s1 NCL_CGAP_Sub5 Homo sapiens cDNA clone IMAGE:2733691 3'   |
| 4721                   | 17856                 |                   | 0.98                 | 7.0E-03                                       | AW630888.1               | EST_HUMAN                     | h188a05.y1 NCL_CGAP_GUH1 Homo sapiens cDNA clone IMAGE:2868836 5'   |
| 5103                   | 18231                 |                   | 6.54                 | 7.0E-03                                       | AL163278.2               | NT                            | Homo sapiens chromosome 21 segment HS21C078   |
| 5940                   | 19126                 |                   | 0.72                 | 7.0E-03                                       | HT1108.1                 | EST_HUMAN                     | yr82g01.r1 Soares fetal liver spleen 1NLS Homo sapiens cDNA clone IMAGE:211824 5' similar to g1cX14723 CLUSTERIN PRECURSOR (HUMAN); |
| 6238                   | 25821                 |                   | 4.42                 | 7.0E-03                                       | AW681059.1               | EST_HUMAN                     | RC1-CT0286-050400-018-c08 CT0286 Homo sapiens cDNA  |
| 6444                   | 19611                 | 32974             | 1.67                 | 7.0E-03                                       | W68251.1                 | EST_HUMAN                     | xx33f10.r1 Soares_fetal_heart_Nrl-H19W Homo sapiens cDNA clone IMAGE:342475 5'  |
| 6567                   | 19826                 | 33213             | 2.92                 | 7.0E-03                                       | AA327129.1               | EST_HUMAN                     | EST30674 Colon I Homo sapiens cDNA 5' end   |

Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 6895                   | 19853                 | 33243             | 1.05                 | 7.0E-03                                       | BE857385.1               | EST_HUMAN                     | 7g94b10.x1 NCI_CGAP_Bm23 Homo sapiens cDNA clone IMAGE:3308347 3' similar to TR:Q15387                 |
| 7228                   | 20193                 | 33550             | 1.93                 | 7.0E-03                                       | BE928133.1               | EST_HUMAN                     | Q13387 HYPOTHETICAL PROTEIN 384D8_2; contains TAR1.2 TAR1 repetitive element;                          |
| 7689                   | 20754                 | 34238             | 4.76                 | 7.0E-03                                       | Z35838.1                 | NT                            | CM2-CT0478-230800-347-b11 CT0478 Homo sapiens cDNA   |
| 7689                   | 20754                 | 34239             | 4.76                 | 7.0E-03                                       | Z35838.1                 | NT                            | S. cerevisiae chromosome II reading frame ORF YBL077W  |
| 8031                   | 21114                 | 34632             | 0.59                 | 7.0E-03                                       | AJ229043.1               | NT                            | S. cerevisiae chromosome II reading frame ORF YBL077W  |
| 8031                   | 21114                 | 34633             | 0.59                 | 7.0E-03                                       | AJ229043.1               | NT                            | Homo sapiens 958 kb contig between AML1 and CBR1 on chromosome 21q22, segment 3/3                      |
| 8302                   | 21394                 | 34905             | 2.49                 | 7.0E-03                                       | BE175667.1               | EST_HUMAN                     | Homo sapiens 959 kb contig between AML1 and CBR1 on chromosome 21q22, segment 3/3                      |
| 8813                   | 21892                 | 35433             | 0.58                 | 7.0E-03                                       | AF281074.1               | NT                            | RC5-HT0582-160300-011-002 HT0582 Homo sapiens cDNA   |
| 8897                   | 22652                 |                   | 0.84                 | 7.0E-03                                       | AF111168.2               | NT                            | Homo sapiens neuropilin 2 (NRP2) gene, complete cds, alternatively spliced                             |
| 9794                   | 22834                 | 36414             | 0.58                 | 7.0E-03                                       | N52378.1                 | EST_HUMAN                     | Homo sapiens serine palmitoyl transferase, submit II gene, complete cds; and unknown genes             |
| 9821                   | 22981                 | 36548             | 2.72                 | 7.0E-03                                       | P48982                   | SWISSPROT                     | y40c10.a1 Scores fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:246088 3' similar to contains  |
| 9821                   | 22981                 | 36549             | 2.72                 | 7.0E-03                                       | P48982                   | SWISSPROT                     | Alu repetitive element;  |
| 10513                  | 23548                 |                   | 1.34                 | 7.0E-03                                       | AV687379.1               | EST_HUMAN                     | BETA-GALACTOSIDASE PRECURSOR (LACTASE)   |
| 10704                  | 23737                 |                   | 0.82                 | 7.0E-03                                       | AJ788734.1               | EST_HUMAN                     | BETA-GALACTOSIDASE PRECURSOR (LACTASE)   |
| 10800                  | 23833                 | 37456             | 0.47                 | 7.0E-03                                       | BE164643.1               | EST_HUMAN                     | AV687379 GKc Homo sapiens cDNA clone GKCAFC07 5'   |
| 11065                  | 24141                 | 37776             | 2.41                 | 7.0E-03                                       | AB008852.1               | NT                            | wc37e09.x1 NCI_CGAP_P28 Homo sapiens cDNA clone IMAGE:2320940 3'                                       |
| 11140                  | 24212                 | 37838             | 1.55                 | 7.0E-03                                       | AJ004862.1               | NT                            | PM3-HT0344-181189-002-p06 HT0344 Homo sapiens cDNA   |
| 11140                  | 24212                 | 37839             | 1.55                 | 7.0E-03                                       | AJ004862.1               | NT                            | Bos taurus mRNA for NDP52, complete cds  |
| 12792                  | 26189                 |                   | 1.85                 | 7.0E-03                                       | H84088.1                 | EST_HUMAN                     | Homo sapiens partial MUC5B gene, exon 1-29   |
| 12800                  | 26534                 |                   | 1.48                 | 7.0E-03                                       | BE283283.1               | EST_HUMAN                     | Homo sapiens partial MUC5B gene, exon 1-29   |
| 12908                  | 26601                 |                   | 1.78                 | 7.0E-03                                       | Y17455.1                 | NT                            | Homo sapiens partial MUC5B gene, exon 1-29   |
| 13058                  | 26188                 |                   | 1.68                 | 7.0E-03                                       | AL163300.2               | NT                            | yv16h01.a1 Scores fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:242833 3' similar to contains |
| 1269                   | 14427                 | 27494             | 8.78                 | 6.0E-03                                       | AW511148.1               | EST_HUMAN                     | Alu repetitive element;  |
| 1269                   | 14427                 | 27495             | 8.78                 | 6.0E-03                                       | AW511148.1               | EST_HUMAN                     | 601145154F2 NIH_MGC_19 Homo sapiens cDNA clone IMAGE:3160478 5'  |
| 2831                   | 16645                 | 28054             | 0.94                 | 6.0E-03                                       | AF112374.1               | NT                            | Homo sapiens LSFR2 gene, penultimate exon  |
| 2950                   | 16133                 | 28147             | 3.29                 | 6.0E-03                                       | AA769135.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21G100  |
| 2956                   | 16133                 | 28148             | 3.28                 | 6.0E-03                                       | AA769135.1               | EST_HUMAN                     | hd22a05.x1 Scores_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2810224 3' similar to                     |
| 3318                   | 16491                 |                   | 2.27                 | 6.0E-03                                       | h75690.1                 | EST_HUMAN                     | SW:PXN_HUMAN_075469 ORPHAN NUCLEAR RECEPTOR PXR;   |
|                        |                       |                   |                      |   |                          |                               | hd22a05.x1 Scores_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2810224 3' similar to                     |
|                        |                       |                   |                      |   |                          |                               | SW:PXN_HUMAN_075469 ORPHAN NUCLEAR RECEPTOR PXR;   |
|                        |                       |                   |                      |   |                          |                               | Danio rerio odorant receptor gene cluster  |
|                        |                       |                   |                      |   |                          |                               | ah78a11.s1 Scores_testis_NHT_Homo sapiens cDNA clone 1321772 3'  |
|                        |                       |                   |                      |   |                          |                               | ah78a11.s1 Scores_testis_NHT_Homo sapiens cDNA clone 1321772 3'  |
|                        |                       |                   |                      |   |                          |                               | y77h04.r1 Scores fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:211551 5'                      |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 3378                   | 16550                 |                   | 0.63                 | 6.0E-03                                       | AF190338.1               | NT                            | Nicotian gl. cytochrome c oxidase subunit II gene, perial cds; mitochondrial gene for mitochondrial product                             |
| 3468                   | 16636                 | 28655             | 1.26                 | 6.0E-03                                       | U00880.1                 | NT                            | Fugu rubripes zinc finger protein, isotocin, fatty acid binding protein, septaparin reductase and vasotocin<br>genes, complete cds      |
| 3469                   | 16638                 | 28656             | 1.25                 | 6.0E-03                                       | U00880.1                 | NT                            | Fugu rubripes zinc finger protein, isotocin, fatty acid binding protein, septaparin reductase and vasotocin<br>genes, complete cds      |
| 3636                   | 16800                 |                   | 1.11                 | 6.0E-03                                       | W37985.1                 | EST_HUMAN                     | Z013611.1 Soares_papillary_tumor_NbHPA Homo sapiens cDNA clone IMAGE:322172 5'  |
| 3750                   | 16911                 | 28914             | 3.73                 | 6.0E-03                                       | BF510886.1               | EST_HUMAN                     | U14-B14-apm-c-06-0-J1 s1 NCI_CGAP_Sub8 Homo sapiens cDNA clone IMAGE:3087754 3'   |
| 3877                   | 17036                 | 30034             | 1.31                 | 6.0E-03                                       | 6754029                  | NT                            | Mus musculus glucosamine-6-phosphate deaminase (Gnp), mRNA  |
| 4032                   | 17188                 | 30189             | 0.6                  | 6.0E-03                                       | AW847284.1               | EST_HUMAN                     | RC0-CT0204-240988-021-b10 CT0204 Homo sapiens cDNA  |
| 4067                   | 17223                 |                   | 1.28                 | 6.0E-03                                       | BE250108.1               | EST_HUMAN                     | 600942904F1 NIH_MGC_15 Homo sapiens cDNA clone IMAGE:2859513 5'   |
| 4484                   | 17624                 |                   | 1.54                 | 6.0E-03                                       | A0106333.1               | EST_HUMAN                     | 6036111.x1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:1639124 3'   |
| 4817                   | 17950                 | 30635             | 7.9                  | 6.0E-03                                       | AA329422.1               | EST_HUMAN                     | EST27116 Cerebellum II Homo sapiens cDNA 5' and similar to EST containing Alu repeat  |
| 5305                   | 18422                 | 31362             | 0.5                  | 6.0E-03                                       | AA886072.1               | EST_HUMAN                     | 605909.s1 Soares_papillary_tumor_NbHPA Homo sapiens cDNA clone IMAGE:1404268 3'   |
| 6281                   | 25822                 | 32803             | 0.89                 | 6.0E-03                                       | 9627521                  | NT                            | Varicella virus, complete genome  |
| 6956                   | 20269                 | 33707             | 0.8                  | 6.0E-03                                       | O14994                   | SWISSPROT                     | SYNAPSIN III  |
| 6994                   | 18513                 | 31505             | 0.97                 | 6.0E-03                                       | BE263748.1               | EST_HUMAN                     | 601172363F1 NIH_MGC_16 Homo sapiens cDNA clone IMAGE:3353172 5'   |
| 7399                   | 20477                 | 33944             | 0.65                 | 6.0E-03                                       | AA2389442.1              | EST_HUMAN                     | EST11949 Uterus tumor I Homo sapiens cDNA 5' and  |
| 7399                   | 20477                 | 33945             | 0.65                 | 6.0E-03                                       | AA2389442.1              | EST_HUMAN                     | EST11949 Uterus tumor I Homo sapiens cDNA 5' and  |
| 7824                   | 20879                 | 34380             | 0.8                  | 6.0E-03                                       | AF128894.1               | NT                            | Homo sapiens telomerase reverse transcriptase (TERT) gene, exons 7-16 and complete cds<br>containing MER10.b1 MER10 repetitive element: |
| 8042                   | 21125                 | 34646             | 6.71                 | 6.0E-03                                       | A033580.1                | EST_HUMAN                     | ov13a04.x1 Soares_papillary_tumor_NbHPA Homo sapiens cDNA clone IMAGE:1646670 3' similar to   |
| 8161                   | 21243                 | 34783             | 2.76                 | 6.0E-03                                       | AW789337.1               | EST_HUMAN                     | RC0-UM0051-210300-032-g02 UM0051 Homo sapiens cDNA  |
| 8236                   | 21318                 |                   | 1.65                 | 6.0E-03                                       | BF038198.1               | EST_HUMAN                     | 601454915F1 NIH_MGC_66 Homo sapiens cDNA clone IMAGE:3858628 5'   |
| 9754                   | 22692                 | 36262             | 7.03                 | 6.0E-03                                       | D10548.1                 | NT                            | Subacute sclerosing panencephalitis (SSPE) virus mRNA for fusion protein  |
| 10246                  | 23284                 |                   | 2.46                 | 6.0E-03                                       | A4328891.1               | EST_HUMAN                     | 622502.x1 NCI_CGAP_KcH11 Homo sapiens cDNA clone IMAGE:2131202 3' similar to SW:R13A_HUMAN  |
| 10365                  | 23400                 | 37011             | 0.75                 | 6.0E-03                                       | AJ011849.1               | NT                            | P40429 60S RIBOSOMAL PROTEIN L13A ;<br>Bacillus subtilis fndD gene  |
| 10503                  | 23638                 |                   | 0.91                 | 6.0E-03                                       | AF084555.1               | NT                            | Homo sapiens cdc2-like acid-inducible and cAMP-regulated phosphoprotein 19 (ARPP-19) mRNA, complete<br>cds                              |
| 10615                  | 23649                 | 37268             | 0.64                 | 6.0E-03                                       | X88398.1                 | NT                            | M.thermoformicicum complete plasmid pFV1 DNA  |
| 10681                  | 23695                 |                   | 0.54                 | 6.0E-03                                       | AF246505.1               | NT                            | Homo sapiens adican mRNA, complete cds  |
| 10983                  | 24082                 | 37687             | 1.66                 | 6.0E-03                                       | AW902164.1               | EST_HUMAN                     | EST374237 MAGE resequences, MAGG Homo sapiens cDNA  |
| 11049                  | 24126                 |                   | 1.94                 | 6.0E-03                                       | 11545814                 | NT                            | Homo sapiens hypothetical zinc finger protein FLJ14011 (FLJ14011), mRNA   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 11228                  | 24297                 |                   | 4.1                  | 6.0E-03                                       | U14566.1                 | NT                            | Mus musculus zinc-finger protein mRNA, complete cds   |
| 11229                  | 24298                 | 37838             | 2.86                 | 6.0E-03                                       | BE737895.1               | EST_HUMAN                     | 601572746F1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:3839747 5'   |
| 12321                  | 25232                 |                   | 2.04                 | 6.0E-03                                       | AF010496.1               | NT                            | Rhodobacter capsulatus strain SB1003, partial genome  |
| 12425                  | 25938                 |                   | 1.3                  | 6.0E-03                                       | BF871185.1               | EST_HUMAN                     | 602151024F1 NIH_MGC_81 Homo sapiens cDNA clone IMAGE:4282212 5'   |
| 12451                  | 26926                 |                   | 4.85                 | 6.0E-03                                       | AE000833.1               | NT                            | Methanobacterium thermoautotrophicum from bases 429192 to 450286 (section 39 of 148) of the complete genome                   |
| 12532                  | 25933                 |                   | 2.49                 | 6.0E-03                                       | U30790.1                 | NT                            | Pneumocystis carinii f. sp. ratii guanine nucleotide binding protein alpha subunit (pcg1) gene, complete cds                  |
| 12590                  | 26397                 |                   | 1.83                 | 6.0E-03                                       | Q82209                   | SWISSPROT                     | SYNAPTONEMAL COMPLEX PROTEIN 1 (SCP-1 PROTEIN)  |
| 12944                  | 26822                 |                   | 2.41                 | 6.0E-03                                       | AJ245480.1               | NT                            | Brassica napus sig gene for S-locus glycoprotein, cultivar T2   |
| 13095                  | 26018                 |                   | 1.61                 | 6.0E-03                                       | X74807.1                 | NT                            | R. norvegicus VEGP2 gene  |
| 13147                  | 25746                 |                   | 1.19                 | 6.0E-03                                       | BF110298.1               | EST_HUMAN                     | 7636b11.x1 NCI_OGAP_Lu24 Homo sapiens cDNA clone IMAGE:3566564 3'   |
| 686                    | 13871                 | 26903             | 1.69                 | 5.0E-03                                       | L25105.1                 | NT                            | Chlamydia trachomatis partial ORF8; aminoacyl-tRNA synthase, complete cds; complete ORF8, and grpE-like protein, complete cds |
| 686                    | 13871                 | 26904             | 1.59                 | 5.0E-03                                       | L25105.1                 | NT                            | Chlamydia trachomatis partial ORF8; aminoacyl-tRNA synthase, complete cds; complete ORF8, and grpE-like protein, complete cds |
| 687                    | 13871                 | 26903             | 3.08                 | 5.0E-03                                       | L25105.1                 | NT                            | Chlamydia trachomatis partial ORF8; aminoacyl-tRNA synthase, complete cds; complete ORF8, and grpE-like protein, complete cds |
| 687                    | 13871                 | 26904             | 3.08                 | 5.0E-03                                       | L25105.1                 | NT                            | Chlamydia trachomatis partial ORF8; aminoacyl-tRNA synthase, complete cds; complete ORF8, and grpE-like protein, complete cds |
| 1136                   | 14301                 | 27367             | 1.47                 | 5.0E-03                                       | AJ010457.1               | NT                            | Arabidopsis thaliana mRNA for DEAD box RNA helicase, RH3  |
| 1601                   | 14754                 |                   | 1.08                 | 6.0E-03                                       | A1138677.1               | EST_HUMAN                     | qf78d05.x1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:1735688 3'   |
| 2746                   | 15863                 | 26974             | 2.43                 | 5.0E-03                                       | AB033006.1               | NT                            | Homo sapiens mRNA for KIAA1180 protein, partial cds   |
| 3206                   | 16381                 | 26392             | 3.87                 | 5.0E-03                                       | T87623.1                 | EST_HUMAN                     | yo81f09.s1 Soares infant brain IN1B Homo sapiens cDNA clone IMAGE:22395 3'  |
| 3223                   | 16397                 |                   | 2.72                 | 6.0E-03                                       | AL161491.2               | EST_HUMAN                     | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 3  |
| 3235                   | 16409                 | 29423             | 1.17                 | 5.0E-03                                       | R71794.1                 | EST_HUMAN                     | y86g02.s1 Soares breast 2NH1Bst Homo sapiens cDNA clone IMAGE:155668 3'   |
| 3351                   | 16523                 |                   | 0.84                 | 5.0E-03                                       | AJ297357.1               | NT                            | Homo sapiens partial LIMD1 gene for LIM domains containing protein 1 and KIAA0851 gene  |
| 3790                   | 16951                 | 28957             | 5.28                 | 5.0E-03                                       | AF147449.2               | NT                            | Pseudomonas aeruginosa strain PAO1 penicillin-binding protein 1B (penB) gene, complete cds                                    |
| 3854                   | 17014                 | 30014             | 0.61                 | 5.0E-03                                       | U38914.1                 | NT                            | Citrus sinensis seed storage protein citrin mRNA, complete cds  |
| 4079                   | 17235                 |                   | 1.64                 | 5.0E-03                                       | AA239575.1               | EST_HUMAN                     | EST12218 Utrac tumor 1 Homo sapiens cDNA 5' end   |
| 4241                   | 17387                 | 30374             | 0.65                 | 6.0E-03                                       | AJ002125.1               | NT                            | Natrix domesticus Zfx type gene   |
| 4421                   | 17562                 | 30548             | 0.71                 | 5.0E-03                                       | HJ78355.1                | EST_HUMAN                     | y178g10.1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:240068 5'   |
| 4423                   | 17014                 | 30014             | 0.76                 | 5.0E-03                                       | U38914.1                 | NT                            | Citrus sinensis seed storage protein citrin mRNA, complete cds  |
| 4731                   | 17886                 | 30848             | 0.92                 | 5.0E-03                                       | AJ131016.1               | NT                            | Homo sapiens SCL gene locus   |

Page 181 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top)<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 4841                   | 17974                 | 30884             | 1.56                 | 5.0E-03                                   | AF52387.1                | EST_HUMAN                     | cn15c02.x1 Normal Human Trabecular Bone Cells Homo sapiens cDNA clone NHTBC_cn15c02 random   |
| 5288                   | 18405                 |                   | 1.9                  | 5.0E-03                                   | 4758747                  | NT                            | Homo sapiens myosin-binding protein C, fast-type (MYBPC2) mRNA   |
| 5916                   | 19104                 | 32417             | 5.4                  | 5.0E-03                                   | P35500                   | SWISSPROT                     | SODIUM CHANNEL PROTEIN PARA (PARALYTIC PROTEIN)  |
|                        |                       |                   |                      |   |                          |                               | PROBABLE UBIQUITIN CARBOXYL-TERMINAL HYDROLASE FAF-Y (UBIQUITIN THIOLESTERASE FAF-Y) (UBIQUITIN-SPECIFIC PROCESSING PROTEASE FAF-Y) (DEUBIQUITINATING ENZYME FAF-Y) (FAT FACETS PROTEIN RELATED, Y-LINKED) (UBIQUITIN-SPECIFIC PROTEASE 9, Y CHROMOSOME) |
| 6169                   | 19345                 | 32891             | 2.82                 | 5.0E-03                                   | O00507                   | SWISSPROT                     | CHROMOSOME   |
| 6204                   | 19379                 |                   | 0.88                 | 5.0E-03                                   | AE002234.2               | NT                            | Chlamydia pneumoniae AR39, section 62 of 94 of the complete genome   |
| 6728                   | 19882                 |                   | 7.34                 | 5.0E-03                                   | BE300081.1               | EST_HUMAN                     | 600944864T1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:2860871 3'  |
| 6986                   | 18505                 | 31520             | 7.22                 | 5.0E-03                                   | AB025024.1               | NT                            | Mus musculus AMD1 gene for S-adenosylmethionine decarboxylase, complete cds  |
| 7185                   | 20050                 |                   | 0.85                 | 5.0E-03                                   | AB038267.1               | NT                            | Tursiops truncatus mRNA for p40-phox, complete cds   |
| 7237                   | 20321                 | 33765             | 0.61                 | 5.0E-03                                   | 6753651                  | NT                            | Mus musculus dyx11, exon, heavy chain 11 (Dnaxho11), mRNA  |
|                        |                       |                   |                      |   |                          |                               | EST03012 Fetal brain, Stragelene (cat#836206) Homo sapiens cDNA clone HFBCH83 similar to EST containing Alu repeat   |
| 7654                   | 20722                 | 34198             | 0.7                  | 5.0E-03                                   | T05124.1                 | EST_HUMAN                     | RC3-CT0255-031089-011-407 CT0255 Homo sapiens cDNA   |
| 7774                   | 20831                 |                   | 1.21                 | 5.0E-03                                   | AW854327.1               | EST_HUMAN                     | Homo sapiens MASL1 mRNA, complete cds  |
| 7844                   | 20894                 | 34505             | 7.18                 | 5.0E-03                                   | AB016816.1               | NT                            | Homo sapiens MASL1 mRNA, complete cds  |
| 8415                   | 21498                 | 35027             | 0.81                 | 5.0E-03                                   | AW855907.1               | EST_HUMAN                     | RC8-CT0281-081189-011-A05 CT0281 Homo sapiens cDNA   |
| 8415                   | 21498                 | 35028             | 0.81                 | 5.0E-03                                   | AW855907.1               | EST_HUMAN                     | RC8-CT0281-081189-011-A05 CT0281 Homo sapiens cDNA   |
| 8433                   | 21514                 | 35045             | 1.89                 | 5.0E-03                                   | P48982                   | SWISSPROT                     | BETA-GALACTOSIDASE PRECURSOR (LACTASE)   |
| 8811                   | 21880                 |                   | 5.83                 | 5.0E-03                                   | M61132.1                 | NT                            | Mouse complement receptor (CR2) mRNA, 3' end   |
| 9007                   | 22096                 | 35629             | 1.21                 | 5.0E-03                                   | D90723.1                 | NT                            | Escherichia coli genomic DNA, (19.1 - 19.4 min)  |
| 9140                   | 22219                 | 35763             | 0.52                 | 5.0E-03                                   | M25090.1                 | NT                            | Rabbit uteroglobin (UGL) gene, exon 1  |
| 10044                  | 23082                 | 36884             | 1.03                 | 5.0E-03                                   | L21710.1                 | NT                            | Plasmodium berghei 58 kDa phosphoprotein mRNA, partial cds   |
| 10176                  | 23213                 | 36805             | 0.74                 | 5.0E-03                                   | AW821888.1               | EST_HUMAN                     | RC8-CT0281-081189-011-A05 CT0281 Homo sapiens cDNA   |
| 10360                  | 23395                 | 37008             | 0.56                 | 5.0E-03                                   | AA53143.1                | EST_HUMAN                     | h45h10.s1 NCI CGAP P18 Homo sapiens cDNA clone IMAGE:585587  |
| 10538                  | 23574                 | 37181             | 0.47                 | 5.0E-03                                   | 7682567                  | NT                            | Homo sapiens PRO0471 protein (PRO0471), mRNA   |
| 10696                  | 23729                 |                   | 0.47                 | 5.0E-03                                   | AA653261.1               | EST_HUMAN                     | ag48c10.s1 Gessier Wilms tumor Homo sapiens cDNA clone IMAGE:1128290 3'  |
| 10959                  | 24040                 |                   | 4.79                 | 5.0E-03                                   | T19586.1                 | EST_HUMAN                     | 694F Heart Homo sapiens cDNA clone 684   |
|                        |                       |                   |                      |   |                          |                               | Xn58g05.x1 Soares_NHCC_cervical_tumor Homo sapiens cDNA clone IMAGE:2698040 3' similar to contains L1 L2 L1 repetitive element;  |
| 11181                  | 24250                 | 37884             | 2.39                 | 5.0E-03                                   | AW170334.1               | EST_HUMAN                     | Xn58g06.x1 Soares_NHCC_cervical_tumor Homo sapiens cDNA clone IMAGE:2698040 3' similar to contains L1 L2 L1 repetitive element;  |
| 11181                  | 24250                 | 37885             | 2.39                 | 5.0E-03                                   | AW170334.1               | EST_HUMAN                     | contains L1 L2 L1 repetitive element;  |
| 11297                  | 24363                 | 38004             | 1.76                 | 5.0E-03                                   | T49153.1                 | EST_HUMAN                     | yc09s04.r1 Stragelene placenta (8937225) Homo sapiens cDNA clone IMAGE:70688 5'  |



Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit<br>Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|-----------------------------|-------------------------------|--|
| 11615                  | 24686                 |                   | 3.41                 | 5.0E-03                                       | BE048055.1                  | EST_HUMAN                     | tz48c04.y1 NCI_CGAP_Bms2 Homo sapiens cDNA clone IMAGE:2281822 5'  |
| 12070                  | 26051                 | 38759             | 1.4                  | 5.0E-03                                       | AJ276505.1                  | NT                            | Mus musculus genomic fragment, 279 Kb, chromosome 7  |
| 12070                  | 26051                 | 38760             | 1.4                  | 5.0E-03                                       | AJ276505.1                  | NT                            | Mus musculus genomic fragment, 279 Kb, chromosome 7  |
| 12467                  | 26144                 |                   | 11.88                | 5.0E-03                                       | AF047874.1                  | NT                            | Gallus gallus glyceraldehyde-3-phosphate dehydrogenase mRNA, complete cds  |
| 12616                  | 25414                 |                   | 21.79                | 5.0E-03                                       | AF067253.1                  | NT                            | Brugia malayi Y chromosome marker  |
| 12718                  | 25478                 |                   | 2.03                 | 5.0E-03                                       | L10347.1                    | NT                            | Human pro-alpha1 type II collagen (COL2A1) gene exons 1-54, complete cds   |
| 12760                  | 25504                 |                   | 1.94                 | 5.0E-03                                       | AA455597.1                  | EST_HUMAN                     | zsf5a03.s1 Scores every tumor NIH-HOT Homo sapiens cDNA clone IMAGE:806548 3' similar to SW:DXA2_MOUSE P14985 PROBABLE DIAPHENOL OXIDASE A2 COMPONENT ;  |
| 12802                  | 25835                 |                   | 5.99                 | 5.0E-03                                       | BF572332.1                  | EST_HUMAN                     | 60207774F1 NIH_MGC_62 Homo sapiens cDNA clone IMAGE:4252002 5'   |
| 13002                  | 25851                 | 31951             | 2.86                 | 5.0E-03                                       | AW449109.1                  | EST_HUMAN                     | UIH-B13-4d4-08-0-UL.s1 NCI_CGAP_Sub65 Homo sapiens cDNA clone IMAGE:2734215 3'   |
| 242                    | 13484                 | 26463             | 1.54                 | 4.0E-03                                       | AW500186.1                  | EST_HUMAN                     | UIHF-BNO-alc-1-04-0-UL.T NIH_MGC_50 Homo sapiens cDNA clone IMAGE:3076831 5'   |
| 331                    | 13545                 | 26575             | 1.75                 | 4.0E-03                                       | R46482.1                    | EST_HUMAN                     | UIHF-BNO-alc-1-04-0-UL.T NIH_MGC_50 Homo sapiens cDNA clone IMAGE:35988 3'   |
| 456                    | 13651                 | 26889             | 1.36                 | 4.0E-03                                       | P54675                      | SWISSPROT                     | y651e04.s1 Scores infant brain 1N1B Homo sapiens cDNA clone IMAGE:1562568 3'   |
| 616                    | 13603                 | 26825             | 4.37                 | 4.0E-03                                       | AA933339.1                  | EST_HUMAN                     | PHOSPHATIDYLINOSITOL 3-KINASE 3 (PI3-KINASE) (PTDINS-3-KINASE) (P13K)  |
| 900                    | 14075                 | 27142             | 1.65                 | 4.0E-03                                       | R46482.1                    | EST_HUMAN                     | on75g12.s1 Scores NFI_T_GBC S1 Homo sapiens cDNA clone IMAGE:1562568 3'  |
| 934                    | 14109                 |                   | 2.85                 | 4.0E-03                                       | AW749101.1                  | EST_HUMAN                     | y651e04.s1 Scores infant brain 1N1B Homo sapiens cDNA clone IMAGE:1562568 3'   |
| 1174                   | 14337                 | 27393             | 34.06                | 4.0E-03                                       | AA099777.1                  | EST_HUMAN                     | RC3-BT0333-110100-012-017 B10333 Homo sapiens cDNA   |
| 1198                   | 14358                 | 27417             | 1.83                 | 4.0E-03                                       | AW794740.1                  | EST_HUMAN                     | z81a08.r1 Stragene colon (#637204) Homo sapiens cDNA clone IMAGE:510998 5'   |
| 1331                   | 14488                 | 27568             | 1.48                 | 4.0E-03                                       | AA284374.1                  | EST_HUMAN                     | RC8-UM0014-170400-023-G01 UM0014 Homo sapiens cDNA   |
| 1783                   | 14932                 | 28026             | 2.08                 | 4.0E-03                                       | U33472.1                    | NT                            | zsf5a03.l1 NCI_CGAP_G081 Homo sapiens cDNA clone IMAGE:701738 5'   |
| 2076                   | 15215                 | 28334             | 17.33                | 4.0E-03                                       | AA089777.1                  | EST_HUMAN                     | Radiu norvegicus type 1 astrocyte and oligodendrocyte associated protein AT1-46 mRNA, complete cds   |
| 2321                   | 15453                 |                   | 2.08                 | 4.0E-03                                       | BE410556.1                  | EST_HUMAN                     | z81a08.r1 Stragene colon (#637204) Homo sapiens cDNA clone IMAGE:510998 5'   |
| 2352                   | 15483                 | 28616             | 1.53                 | 4.0E-03                                       | AW794740.1                  | EST_HUMAN                     | 601304161F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3838510 5'  |
| 2639                   | 15762                 | 28875             | 1.95                 | 4.0E-03                                       | U62111.2                    | NT                            | RC8-UM0014-170400-023-G01 UM0014 Homo sapiens cDNA   |
| 2639                   | 15762                 | 28876             | 1.96                 | 4.0E-03                                       | U62111.2                    | NT                            | Homo sapiens X28 region near ALD locus containing dual specificity phosphatase 9 (DUSP9), ribosomal protein L18a (RPL18a), Ca2+/Calmodulin-dependent protein kinase 1 (CAMK1), creatine transporter (CKTR), CDM protein (CDM), adenosine diphosphatase protein > |
| 2755                   | 15972                 | 28980             | 2.97                 | 4.0E-03                                       | AJ277365.1                  | NT                            | Homo sapiens X28 region near ALD locus containing dual specificity phosphatase 9 (DUSP9), ribosomal protein L18a (RPL18a), Ca2+/Calmodulin-dependent protein kinase 1 (CAMK1), creatine transporter (CKTR), CDM protein (CDM), adenosine diphosphatase protein > |
| 2755                   | 15972                 | 28981             | 2.97                 | 4.0E-03                                       | AJ277365.1                  | NT                            | CDM protein (CDM), adenosine diphosphatase protein >   |
| 2761                   | 15977                 | 28984             | 0.97                 | 4.0E-03                                       | AL163284.2                  | NT                            | Homo sapiens polyglutamine-containing C14ORF4 gene   |
| 3287                   | 16471                 | 29491             | 1.09                 | 4.0E-03                                       | BE154134.1                  | EST_HUMAN                     | Homo sapiens polyglutamine-containing C14ORF4 gene   |

Page 183 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 3297                   | 16471                 | 28492             | 1.09                 | 4.0E-03                                       | BE154134.1               | EST_HUMAN                     | PM1-HT0340-151288-003-108 HT0340 Homo sapiens cDNA   |
| 3619                   | 16783                 | 29798             | 0.83                 | 4.0E-03                                       | AW188428.1               | EST_HUMAN                     | X68804.x1 NCI_CGAP_Cot18 Homo sapiens cDNA clone IMAGE:2865279 3'  |
| 3610                   | 16783                 | 29799             | 0.83                 | 4.0E-03                                       | AW188428.1               | EST_HUMAN                     | X68804.x1 NCI_CGAP_Cot18 Homo sapiens cDNA clone IMAGE:2865279 3'  |
| 3714                   | 16875                 | 29880             | 0.84                 | 4.0E-03                                       | Q13608                   | SWISSPROT                     | OLFACTORY RECEPTOR 511 (OLFACTORY RECEPTOR-LIKE PROTEIN OLF1)  |
| 4021                   | 16875                 | 29880             | 0.85                 | 4.0E-03                                       | Q13608                   | SWISSPROT                     | OLFACTORY RECEPTOR 511 (OLFACTORY RECEPTOR-LIKE PROTEIN OLF1)  |
| 4040                   | 17196                 | 30207             | 0.72                 | 4.0E-03                                       | AF060868.1               | NT                            | Mus musculus tumor susceptibility protein 101 (tsg101) gene, complete cds  |
| 4102                   | 17256                 |                   | 2.18                 | 4.0E-03                                       | AJ011712.1               | NT                            | Homo sapiens TNNT1 gene, exons 1-11 (and joined CDS)   |
| 8339                   | 18452                 | 31420             | 0.98                 | 4.0E-03                                       | AW500547.1               | EST_HUMAN                     | U1-HF-BNO-alk-e-10-Q-U11 NIH_MGC_50 Homo sapiens cDNA clone IMAGE:3077486 5'   |
| 5390                   | 18592                 | 31564             | 1.68                 | 4.0E-03                                       | AF005859.1               | NT                            | Drosophila melanogaster armo207 (arom207) mRNA, complete cds   |
| 5516                   | 18713                 | 31728             | 27.24                | 4.0E-03                                       | AF169826.1               | NT                            | Rattus norvegicus beta-catenin binding protein mRNA, complete cds  |
| 5814                   | 19102                 | 32416             | 3.1                  | 4.0E-03                                       | P04196                   | SWISSPROT                     | (HPRG)   |
| 5918                   | 19106                 | 32418             | 1.8                  | 4.0E-03                                       | P21849                   | SWISSPROT                     | MAJOR SURFACE-LABELLED TROPHOZYTE ANTIGEN PRECURSOR  |
| 6003                   | 19188                 | 32507             | 0.8                  | 4.0E-03                                       | AL133871.1               | EST_HUMAN                     | DKFZp7611014.1 761 (synonym: ham2) Homo sapiens cDNA clone DKFZp7611014 5'   |
| 6209                   | 19384                 |                   | 4.18                 | 4.0E-03                                       | U22180.1                 | NT                            | Rattus norvegicus opsin gene, complete cds   |
| 6363                   | 19533                 | 32892             | 0.97                 | 4.0E-03                                       | AW690572.1               | EST_HUMAN                     | hg4807.x1 NCI_CGAP_G08 Homo sapiens cDNA clone IMAGE:2848652 3'  |
| 8439                   | 19608                 | 32989             | 1.79                 | 4.0E-03                                       | BE548453.1               | EST_HUMAN                     | 601076015F1 NIH_MGC_12 Homo sapiens cDNA clone IMAGE:3461854 5'  |
| 8609                   | 19963                 | 33367             | 1.07                 | 4.0E-03                                       | AA813222.1               | EST_HUMAN                     | g13211.61 Soares_testis_NHT Homo sapiens cDNA clone 1392045 3'   |
| 6914                   | 20228                 | 33662             | 1.41                 | 4.0E-03                                       | U76408.1                 | NT                            | Lycopersicon esculentum knotted 3 protein (TKG3) mRNA, complete cds  |
| 7217                   | 20082                 | 33495             | 1.12                 | 4.0E-03                                       | AL163278.2               | NT                            | Homo sapiens chromosome 21 segment HS21C078  |
| 7217                   | 20082                 | 33496             | 1.12                 | 4.0E-03                                       | AL163278.2               | NT                            | Homo sapiens chromosome 21 segment HS21C078  |
| 7348                   | 20428                 | 33689             | 3.73                 | 4.0E-03                                       | Q02817                   | SWISSPROT                     | MUCIN 2 PRECURSOR (INTESTINAL MUCIN 2)   |
| 7589                   | 20680                 | 34136             | 0.86                 | 4.0E-03                                       | AJ081483.1               | EST_HUMAN                     | bc37g12.x1 NCI_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:2271814 3'  |
| 7591                   | 20682                 | 34138             | 0.62                 | 4.0E-03                                       | BE670170.1               | EST_HUMAN                     | 7631502.x1 NCI_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3284043 3'  |
| 7683                   | 20758                 |                   | 0.85                 | 4.0E-03                                       | X92108.1                 | NT                            | H.sapiens hcgIX gene   |
| 8128                   | 21210                 | 34731             |                      |   | Q8T192                   | SWISSPROT                     | ADAM-TS 5 (A DISINTEGRIN AND METALLOPROTEINASE WITH THROMBOSPONDIN MOTIFS 5) (ADAMTS-5) (ADAM-TS5) (AGGRECANASE-2) (ADMP-2) (ADAM-TS 11) |
| 8238                   | 21320                 | 34838             | 4.61                 | 4.0E-03                                       | AF111944.1               | NT                            | Dicotyledon discoidium AX4 development protein DG1122 (DG1122) gene, partial cds   |
| 8308                   | 21479                 | 35008             | 2                    | 4.0E-03                                       | 7662067                  | NT                            | Homo sapiens KIAA0345 gene product (KIAA0345), mRNA  |
| 8695                   | 21745                 | 35284             | 0.87                 | 4.0E-03                                       | AF139627.1               | NT                            | Plasmodium falciparum replication factor C subunit 1 (rfc1) gene, complete cds   |
| 8761                   | 21840                 | 35381             | 0.51                 | 4.0E-03                                       | Y12855.1                 | NT                            | Homo sapiens P2X7 gene, exon 12 and 13   |
| 8911                   | 21980                 | 35529             | 7.06                 | 4.0E-03                                       | A1553983.1               | EST_HUMAN                     | bc48b11.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2080013 3' similar to contains Alu repetitive element                       |
| 9090                   | 22169                 |                   | 3.24                 | 4.0E-03                                       | AL163208.2               | NT                            | Homo sapiens chromosome 21 segment HS21C009  |
| 9100                   | 22179                 | 35723             | 3.76                 | 4.0E-03                                       | AL163278.2               | NT                            | Homo sapiens chromosome 21 segment HS21C078  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Description  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 9825                   | 22855                 | 38447             | 0.47                 | 4.0E-03                                       | AL163207.2               | NT                            | Homo sapiens chromosome 21 segment HS21C007  |
| 9825                   | 22855                 | 38448             | 0.47                 | 4.0E-03                                       | AL163207.2               | NT                            | Homo sapiens chromosome 21 segment HS21C007  |
| 10131                  | 23160                 | 38768             | 0.63                 | 4.0E-03                                       | HS0864.1                 | EST_HUMAN                     | yp42g12.1 Soares retina N2b5HR Homo sapiens cDNA clone IMAGE:190150 5'   |
| 10587                  | 23622                 | 37229             | 1.35                 | 4.0E-03                                       | AL161555.2               | NT                            | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 85  |
| 11283                  | 24349                 | 37988             | 1.36                 | 4.0E-03                                       | 4759101                  | NT                            | Homo sapiens splicing factor, arginine/serine-rich 8 (suppressor-of-white-epitot, Drosophila homolog) (SFRS8) mRNA                               |
| 11394                  | 24455                 | 38117             | 5                    | 4.0E-03                                       | AL163208.2               | NT                            | Homo sapiens chromosome 21 segment HS21C008  |
| 12072                  | 25033                 | 38762             | 1.57                 | 4.0E-03                                       | AE002102.1               | NT                            | Ureaplasma urealyticum section 3 of 59 of the complete genome  |
| 12434                  | 26163                 |                   | 5.84                 | 4.0E-03                                       | BE15173.1                | EST_HUMAN                     | PM4-BN0138-180600-002-b08 BN0138 Homo sapiens cDNA   |
| 12457                  | 25321                 |                   | 1.35                 | 4.0E-03                                       | BE288280.1               | EST_HUMAN                     | 601118184f1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:3028095 5'  |
| 12541                  | 25357                 |                   | 1.95                 | 4.0E-03                                       | AW504273.1               | EST_HUMAN                     | UIHF-BN0-ab-g-04-0-U1.1 NIH_MGC_50 Homo sapiens cDNA clone IMAGE:3090322 5'  |
| 12814                  | 25543                 |                   | 3.33                 | 4.0E-03                                       | BF224125.1               | EST_HUMAN                     | 7q74c09.x1 NCL_CGAP_L124 Homo sapiens cDNA clone IMAGE:3' similar to contains Alu repetitive element; contains element MER31 repetitive element; |
| 12858                  | 26053                 |                   | 2.18                 | 4.0E-03                                       | AW614598.1               | EST_HUMAN                     | 1H02007.x1 NCL_CGAP_KM11 Homo sapiens cDNA clone IMAGE:2953932 3' similar to contains element LTR6 repetitive element;                           |
| 12871                  | 25581                 |                   | 1.34                 | 4.0E-03                                       | AW819141.1               | EST_HUMAN                     | RC3-ST0281-240400-015-R03 ST0281 Homo sapiens cDNA   |
| 13202                  | 25784                 | 31918             | 1.23                 | 4.0E-03                                       | 11436885                 | NT                            | Homo sapiens Grib2-associated binder 2 (KIAA0571), mRNA  |
| 382                    | 13590                 | 26828             | 1.25                 | 3.0E-03                                       | AF011920.1               | NT                            | Homo sapiens protein kinase CK2 catalytic subunit alpha gene, exon 1   |
| 802                    | 14077                 | 27143             | 4.87                 | 3.0E-03                                       | AF011920.1               | NT                            | Homo sapiens protein kinase CK2 catalytic subunit alpha gene, exon 1   |
| 1894                   | 14848                 | 27930             | 3.65                 | 3.0E-03                                       | AA468110.1               | EST_HUMAN                     | nc79c05.s1 NCL_CGAP_P12 Homo sapiens cDNA clone IMAGE:782984 similar to contains Alu repetitive element  |
| 2367                   | 15498                 |                   | 6.37                 | 3.0E-03                                       | Z32521.1                 | NT                            | S.cereale (cv. Hiclo) mRNA for ribosephosphate isomerase   |
| 2368                   | 15498                 | 28624             | 1.14                 | 3.0E-03                                       | U46898.1                 | NT                            | Mus musculus intestinal trefoil factor gene, partial cds   |
| 2368                   | 15498                 | 28625             | 1.14                 | 3.0E-03                                       | U46898.1                 | NT                            | Mus musculus intestinal trefoil factor gene, partial cds   |
| 3056                   | 16232                 |                   | 0.77                 | 3.0E-03                                       | Y09006.1                 | NT                            | Arabidopsis thaliana rpoMt gene  |
| 3162                   | 16327                 | 28338             | 3.55                 | 3.0E-03                                       | BE378296.1               | EST_HUMAN                     | 601237982F1 NIH_MGC_44 Homo sapiens cDNA clone IMAGE:3609933 5'  |
| 3220                   | 16394                 | 29405             | 2.63                 | 3.0E-03                                       | AW802887.1               | EST_HUMAN                     | IL2-UM0076-240300-056-D03 UM0076 Homo sapiens cDNA   |
| 3504                   | 16871                 | 28681             | 2.16                 | 3.0E-03                                       | U24606.1                 | NT                            | Mus musculus alpha-1(XVII) collagen (COL18A1) gene, exon 1 and 2   |
| 3513                   | 16879                 |                   | 7.5                  | 3.0E-03                                       | Y12500.1                 | NT                            | C.elegans samdc gene   |
| 4086                   | 17241                 | 30248             | 7.76                 | 3.0E-03                                       | AV762392.1               | EST_HUMAN                     | AV762392 MDS Homo sapiens cDNA clone MDSBSG01 5'   |
| 4086                   | 17241                 | 30249             | 7.76                 | 3.0E-03                                       | AV762392.1               | EST_HUMAN                     | AV762392 MDS Homo sapiens cDNA clone MDSBSG01 5'   |
| 4147                   | 17289                 | 30291             | 1.67                 | 3.0E-03                                       | AF782278.1               | EST_HUMAN                     | af04089.y5 Gassler Wilms tumor Homo sapiens cDNA clone IMAGE:1155689 5'  |
| 4515                   | 17654                 | 30642             | 5.53                 | 3.0E-03                                       | AJ011432.1               | NT                            | Rattus norvegicus gdnf gene  |
| 4641                   | 17777                 | 30758             | 4.62                 | 3.0E-03                                       | AF536141.1               | EST_HUMAN                     | xa8.P10.H3 contom Homo sapiens cDNA 3'   |

Page 185 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 4858                   | 17681                 | 30878             | 0.88                 | 3.0E-03                                       | AL118087.1               | EST_HUMAN                     | DKFZp781B0712.1 761 (synonym: hamy2) Homo sapiens cDNA clone DKFZp781B0712.5   |
| 4855                   | 18085                 | 31061             | 2.05                 | 3.0E-03                                       | AJ732754.1               | EST_HUMAN                     | ab18a08.x5 Stratiogene lung (#837210) Homo sapiens cDNA clone IMAGE:3885483 5'   |
| 4878                   | 18107                 | 31083             | 5.53                 | 3.0E-03                                       | BE787946.1               | EST_HUMAN                     | 601482715F1 NIH_MGC_68 Homo sapiens cDNA clone IMAGE:3885483 5'  |
| 5255                   | 18375                 | 31341             | 0.9                  | 3.0E-03                                       | 4508414                  | NT                            | Homo sapiens RAP1, GTPase activating protein 1 (RAP1GA1) mRNA  |
| 5255                   | 18375                 | 31342             | 0.9                  | 3.0E-03                                       | 4508414                  | NT                            | Homo sapiens RAP1, GTPase activating protein 1 (RAP1GA1) mRNA  |
| 5262                   | 18381                 | 31347             | 1.76                 | 3.0E-03                                       | AI193880.1               | EST_HUMAN                     | q880b10.x1 Soares_fetal_lung_NbHL10W Homo sapiens cDNA clone IMAGE:1745276 3' similar to SW/AP17_MOUSE Q00380 CLATHRIN COAT ASSEMBLY PROTEIN AP17; contains MSR1.2 MER22 repetitive element; |
| 5390                   | 18582                 | 31451             | 3.38                 | 3.0E-03                                       | 8922469                  | NT                            | Homo sapiens hypothetical protein FLJ10539 (FLJ10539), mRNA  |
| 5673                   | 18867                 | 32163             | 1.08                 | 3.0E-03                                       | AJ249881.1               | NT                            | Mus musculus mRNA for hypothetical protein (ORF2 ortholog)   |
| 5744                   | 18937                 | 32237             | 0.83                 | 3.0E-03                                       | U35323.1                 | NT                            | Mus musculus H2-M alpha chain (H2-Ma) gene, H2-M beta 2 chain (H2-Mb2) gene, H2-M beta 1 chain (H2-Mb1) gene, low molecular weight protein 2 Lnp2 (Lnp2) gene, complete cds                  |
| 6883                   | 19841                 | 33231             | 0.72                 | 3.0E-03                                       | AA456701.1               | EST_HUMAN                     | aa1310.r1 Soares_NHRIMP4_S1 Homo sapiens cDNA clone IMAGE:313163 5'  |
| 7168                   | 20301                 | 33744             | 0.75                 | 3.0E-03                                       | D37877.1                 | NT                            | Fugu rubripes mRNA for sodium channel alpha subunit, partial cds   |
| 7354                   | 20433                 | 33865             | 1.38                 | 3.0E-03                                       | AJ011419.1               | NT                            | Kluyveromyces marxianus pcp3 gene for purine-cytosine permease   |
| 7681                   | 20756                 | 34241             | 3.71                 | 3.0E-03                                       | AB021736.1               | NT                            | Onyza sativa gene for bZIP protein, complete cds   |
| 8124                   | 21206                 | 34728             | 0.9                  | 3.0E-03                                       | BF333058.1               | EST_HUMAN                     | RCQ-BT0812-250800-032-e07 BT0812 Homo sapiens cDNA   |
| 8124                   | 21206                 | 34727             | 0.9                  | 3.0E-03                                       | BF333058.1               | EST_HUMAN                     | RCQ-BT0812-250800-032-e07 BT0812 Homo sapiens cDNA   |
| 8350                   | 21431                 | 34955             | 1.4                  | 3.0E-03                                       | N92580.1                 | EST_HUMAN                     | z527b04.s1 Soares_parathyroid_tumor_NbHPA Homo sapiens cDNA clone IMAGE:304783 3'  |
| 8480                   | 21571                 | 35108             | 0.47                 | 3.0E-03                                       | AI866028.1               | EST_HUMAN                     | w24409.x1 NCI_CGAP_U11 Homo sapiens cDNA clone IMAGE:2425841 3'  |
| 8510                   | 21691                 |                   | 0.63                 | 3.0E-03                                       | M83468.1                 | NT                            | S.cerevisiae UGA35 gene, complete cds  |
| 8655                   | 21735                 | 35278             | 1.34                 | 3.0E-03                                       | P51989                   | SWISSPROT                     | HETEROGENEOUS NUCLEAR RIBONUCLEOPROTEIN A2 HOMOLOG 1 (HNRNP A2(A))   |
| 8678                   | 21759                 | 35295             | 1.6                  | 3.0E-03                                       | AL163289.2               | NT                            | Homo sapiens chromosome 21 segment HS21C068  |
| 8786                   | 21895                 |                   | 1.45                 | 3.0E-03                                       | Q8QNM91                  | SWISSPROT                     | NONSTRUCTURAL PROTEIN V  |
| 8912                   | 22270                 |                   | 10.8                 | 3.0E-03                                       | AW618774.1               | EST_HUMAN                     | hh80f10.x1 NCI_CGAP_GUT1 Homo sapiens cDNA clone IMAGE:2969131 3' similar to contains L1.f1 L1   |
| 8945                   | 22322                 | 35866             | 4.26                 | 3.0E-03                                       | AL161589.2               | NT                            | repetitive element;  |
| 8959                   | 22345                 | 35896             | 0.88                 | 3.0E-03                                       | AI016731.1               | EST_HUMAN                     | Arabidopsis thaliana DNA chromosome 4, contig fragment No. 85  |
| 8980                   | 22356                 | 35908             | 0.53                 | 3.0E-03                                       | BF338078.1               | EST_HUMAN                     | ov03d12.x1 NCI_CGAP_Kid3 Homo sapiens cDNA clone IMAGE:1836247 3' similar to gb:U57138_mai   |
| 8989                   | 22584                 |                   | 0.78                 | 3.0E-03                                       | D80801.1                 | NT                            | HISTONE H2B.2 (HUMAN);   |
| 8848                   | 21089                 | 34804             | 0.77                 | 3.0E-03                                       | BE154670.1               | EST_HUMAN                     | 602035580FT NCI_CGAP_Bim64 Homo sapiens cDNA clone IMAGE:4188938 5'  |
| 8856                   | 22876                 |                   | 0.56                 | 3.0E-03                                       | P03355                   | SWISSPROT                     | Synechococcus sp. PCC6803 complete genome, 3/27, 271600-402289   |
|                        |                       |                   |                      |   |                          |                               | PM3-HT0844-071299-003-d07 HT0344 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | POL POLYPOLYMERIN [CONTAINS: PROTEASE; REVERSE TRANSCRIPTASE; RIBONUCLEASE H]  |

Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 9908                   | 22948                 |                   | 6.61                 | 3.0E-03                                       | P08672                   | SWISSPROT                     | CIRCUMSPOROZOITE PROTEIN PRECURSOR (GS)  |
| 10099                  | 23137                 | 39738             | 2.31                 | 3.0E-03                                       | P11369                   | SWISSPROT                     | RETROVIRUS-RELATED POLYPROTEIN [CONTAINS: REVERSE TRANSCRIPTASE; ENDONUCLEASE]   |
| 10200                  | 23237                 | 36827             | 1.44                 | 3.0E-03                                       | P51969                   | SWISSPROT                     | HETEROGENEOUS NUCLEAR RIBONUCLEOPROTEIN A2 HOMOLOG 1 (HNRNP A2(A))   |
| 10344                  | 23379                 | 36990             | 3.89                 | 3.0E-03                                       | AL163303.2               | NT                            | Homo sapiens chromosome 21 segment HS21C103  |
| 11085                  | 24159                 |                   | 2.67                 | 3.0E-03                                       | 5803028                  | NT                            | Homo sapiens ATP/GTP-binding protein (HEAB), mRNA  |
| 11458                  | 20766                 | 34241             | 1.45                 | 3.0E-03                                       | AB021736.1               | NT                            | Oryza sativa gene for bZIP protein, complete cds   |
| 11722                  | 23908                 | 37532             | 1.47                 | 3.0E-03                                       | P22531                   | SWISSPROT                     | SMALL PROLINE RICH PROTEIN II (SPR-II) (CLONE 930)   |
| 11732                  | 23918                 | 37543             | 1.9                  | 3.0E-03                                       | AF268285.1               | NT                            | Homo sapiens golgin-like protein (GLP) gene, complete cds  |
| 11770                  | 24782                 | 38457             | 2.52                 | 3.0E-03                                       | AF084481.1               | NT                            | Homo sapiens tritucleotide repeat DNA binding protein p20-CGGBP (CGGBP) gene, complete cds   |
| 11770                  | 24782                 | 38458             | 2.62                 | 3.0E-03                                       | AF084481.1               | NT                            | Homo sapiens tritucleotide repeat DNA binding protein p20-CGGBP (CGGBP) gene, complete cds   |
| 11848                  | 24898                 | 38532             | 1.36                 | 3.0E-03                                       | P11369                   | SWISSPROT                     | RETROVIRUS-RELATED POLYPROTEIN [CONTAINS: REVERSE TRANSCRIPTASE; ENDONUCLEASE]   |
| 12077                  | 25057                 |                   | 1.46                 | 3.0E-03                                       | AW294812.1               | EST_HUMAN                     | UIH-B12-eh1-d-08-0-UJ.s1 NCI_CGAP_Sub4 Homo sapiens cDNA clone IMAGE:2726842 3'  |
| 12199                  | 25948                 |                   | 1.62                 | 3.0E-03                                       | AJ525056.1               | EST_HUMAN                     | pramuna-6.E07.r bvtumor Homo sapiens cDNA 5'   |
| 12235                  | 26179                 | 38348             | 1.24                 | 3.0E-03                                       | AA983154.1               | EST_HUMAN                     | o77010.s1 Scores: total_fetus_Nb2HF8_9w Homo sapiens cDNA clone IMAGE:1822779 3' similar to contains L1.03 MER26 repetitive element; |
| 12296                  | 26090                 |                   | 1.78                 | 3.0E-03                                       | AB009688.1               | NT                            | Homo sapiens gene for CMP-N-acetylneuraminic acid hydroxylase, partial cds   |
| 12481                  | 26333                 | 32057             | 1.23                 | 3.0E-03                                       | AJ286282.1               | NT                            | Rattus norvegicus mRNA for connexin36 (cx36 gene)  |
| 528                    | 13721                 | 26746             | 0.87                 | 2.0E-03                                       | Q04652                   | SWISSPROT                     | RING CANAL PROTEIN (KELCH PROTEIN)   |
| 528                    | 13721                 | 26747             | 0.87                 | 2.0E-03                                       | Q04652                   | SWISSPROT                     | RING CANAL PROTEIN (KELCH PROTEIN)   |
| 808                    | 16023                 |                   | 11.88                | 2.0E-03                                       | T70874.1                 | EST_HUMAN                     | Yd15h03.t1 Scores: fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:108941 5'  |
| 1304                   | 14548                 | 27624             | 2.08                 | 2.0E-03                                       | M20783.1                 | NT                            | Human alpha-2-plasmin inhibitor gene, exons 6 and 7  |
| 1397                   | 14551                 | 27628             | 1.42                 | 2.0E-03                                       | AA681605.1               | EST_HUMAN                     | nu88901.s1 NCI_CGAP_Av1 Homo sapiens cDNA clone IMAGE:1217583  |
| 1408                   | 14580                 | 27634             | 20.85                | 2.0E-03                                       | AF284446.1               | NT                            | Homo sapiens tumor-related protein DRG2 (DRG2) gene, complete cds  |
| 1519                   | 14672                 | 27754             | 1.1                  | 2.0E-03                                       | P48509                   | SWISSPROT                     | PLATELET-ENDOTHELIAL TETRASPAN ANTIGEN 3 (PETA-3) (GP27) (MEMBRANE GLYCOPROTEIN SFA-1) (CD151 ANTIGEN)                               |
| 1546                   | 14698                 | 27776             | 2.28                 | 2.0E-03                                       | 4557836                  | NT                            | Homo sapiens procollagen-lysine, 2-oxoglutarate 5-dioxygenase (lysine hydroxylase, Ehlers-Danlos syndrome type VI) (PLOD) mRNA       |
| 1546                   | 14698                 | 27777             | 2.28                 | 2.0E-03                                       | 4557836                  | NT                            | Homo sapiens procollagen-lysine, 2-oxoglutarate 5-dioxygenase (lysine hydroxylase, Ehlers-Danlos syndrome type VI) (PLOD) mRNA       |
| 1621                   | 14773                 |                   | 6.17                 | 2.0E-03                                       | P29400                   | SWISSPROT                     | COLLAGEN ALPHA 5(M) CHAIN PRECURSOR  |
| 1811                   | 14980                 | 28053             | 1.27                 | 2.0E-03                                       | AA450138.1               | EST_HUMAN                     | zx42a10.t1 Scores: total_fetus_Nb2HF8_9w Homo sapiens cDNA clone IMAGE:789114 5'   |
| 1928                   | 15071                 |                   | 1.09                 | 2.0E-03                                       | BE144908.1               | EST_HUMAN                     | GM2-HT10183-061088-018-d03 HT10183 Homo sapiens cDNA   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 2051                   | 15192                 | 28305             | 1.59                 | 2.0E-03                                       | AF302891.1               | NT                            | Mus musculus myelin expression factor-3-like protein gene, partial cds  |
| 2324                   | 15468                 | 28588             | 0.97                 | 2.0E-03                                       | AL163302.2               | NT                            | Homo sapiens chromosome 21 segment HS21G102   |
| 2847                   | 15770                 |                   | 4.93                 | 2.0E-03                                       | AW137782.1               | EST_HUMAN                     | UH-HB1-adj-g-10-0-UJ.s1 NCI CGAP_Sub3 Homo sapiens cDNA clone IMAGE:2717010 3'                                  |
| 3503                   | 16070                 | 28680             | 4.92                 | 2.0E-03                                       | AA450138.1               | EST_HUMAN                     | 2x42x10.r1 Soares_tbal_fetus_Nb2HFB_pw Homo sapiens cDNA clone IMAGE:789114 5'                                  |
| 3510                   | 16676                 | 28688             | 0.96                 | 2.0E-03                                       | BF368953.1               | EST_HUMAN                     | 602183960T1 NIH_MGC_42 Homo sapiens cDNA clone IMAGE:4300070 3'   |
| 3768                   | 16917                 | 28919             | 5.48                 | 2.0E-03                                       | XB7344.1                 | NT                            | H. sapiens DMA, DMB, HLA-Z1, IPP2, LMP2, TAP1, LMP7, TAP2, DOB, DOB2 and RING3, 9, 13 and 14 genes              |
| 4062                   | 17218                 | 30226             | 0.62                 | 2.0E-03                                       | AB040802.1               | NT                            | Rattus norvegicus mRNA for SREB1, complete cds  |
| 4229                   | 17376                 | 30384             | 2.39                 | 2.0E-03                                       | P03374                   | SWISSPROT                     | ENV POLYPROTEIN [CONTAINS: COAT PROTEIN GP32; COAT PROTEIN GP36]  |
| 4280                   | 17435                 | 30423             | 1.02                 | 2.0E-03                                       | AA179683.1               | EST_HUMAN                     | 2p13M01.r1 Stratagene fetal retina 837202 Homo sapiens cDNA clone IMAGE:608361 5'                               |
| 4336                   | 17479                 |                   | 13.93                | 2.0E-03                                       | U08491.1                 | NT                            | Rattus norvegicus 5-hydroxytryptamine7 receptor gene, partial cds   |
| 4632                   | 17670                 |                   | 1.99                 | 2.0E-03                                       | L35078.1                 | NT                            | Porcine rotavirus major outer capsid protein (VP7) mRNA, complete cds   |
| 4547                   | 17685                 |                   | 1.22                 | 2.0E-03                                       | AW297380.1               | EST_HUMAN                     | UH-HBW-adj-g-03-0-UJ.s1 NCI CGAP_Sub6 Homo sapiens cDNA clone IMAGE:2730413 3'                                  |
| 4551                   | 17689                 | 30670             | 1.05                 | 2.0E-03                                       | AI064746.1               | EST_HUMAN                     | HA0507 Human fetal liver cDNA library Homo sapiens cDNA   |
| 4698                   | 17803                 | 30780             | 2.11                 | 2.0E-03                                       | L42512.1                 | NT                            | Drosophila melanogaster shortighted class 2 (shs) mRNA, complete cds  |
| 4698                   | 17803                 | 30781             | 2.11                 | 2.0E-03                                       | L42512.1                 | NT                            | Drosophila melanogaster shortighted class 2 (shs) mRNA, complete cds  |
| 4828                   | 17991                 | 30849             | 1.02                 | 2.0E-03                                       | AF228391.1               | NT                            | Homo sapiens calcium channel alpha1E subunit (CACNA1E) gene, exons 7-49, and partial cds, alternatively spliced |
| 4832                   | 17995                 |                   | 1.57                 | 2.0E-03                                       | R87773.1                 | EST_HUMAN                     | yc45e02.s1 Soares adult brain N2b-4H55Y Homo sapiens cDNA clone IMAGE:180890 3'                                 |
| 4902                   | 18091                 | 31087             | 1.07                 | 2.0E-03                                       | P11000                   | SWISSPROT                     | WALL-ASSOCIATED PROTEIN PRECURSOR   |
| 5132                   | 18257                 | 31223             | 0.84                 | 2.0E-03                                       | AF003528.1               | NT                            | Homo sapiens X-linked arylsulfatase ectodermal dysplasia protein gene (EDA), exon 2 and flanking repeat regions |
| 5604                   | 18796                 | 31849             | 1.57                 | 2.0E-03                                       | BF241410.1               | EST_HUMAN                     | 601876385F1 NIH_MGC_55 Homo sapiens cDNA clone IMAGE:4104682 5'   |
| 5745                   | 25810                 | 32238             | 1.83                 | 2.0E-03                                       | AB014568.1               | NT                            | Homo sapiens mRNA for KIAA0893 protein, partial cds   |
| 5828                   | 19019                 | 32325             | 2.08                 | 2.0E-03                                       | U03711.1                 | NT                            | Xenopus laevis xellin mRNA, complete cds  |
| 6236                   | 19411                 | 32768             | 3.93                 | 2.0E-03                                       | P23477                   | SWISSPROT                     | ATP-DEPENDENT NUCLEASE SUBUNIT B  |
| 6238                   | 19411                 | 32759             | 3.93                 | 2.0E-03                                       | P23477                   | SWISSPROT                     | ATP-DEPENDENT NUCLEASE SUBUNIT B  |
| 6476                   | 19843                 | 33004             | 2.28                 | 2.0E-03                                       | Q95203                   | SWISSPROT                     | CARBONIC ANHYDRASE-RELATED PROTEIN 2 PRECURSOR (CARP 2) (CA-RP II) (CA-XI)                                      |
| 6476                   | 19843                 | 33005             | 2.28                 | 2.0E-03                                       | Q95203                   | SWISSPROT                     | CARBONIC ANHYDRASE-RELATED PROTEIN 2 PRECURSOR (CARP 2) (CA-RP II) (CA-XI)                                      |
| 6478                   | 19845                 | 33007             | 7.65                 | 2.0E-03                                       | BF308187.1               | EST_HUMAN                     | 601887434F1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:4121408 5'   |
| 6514                   | 19879                 | 33049             | 2.16                 | 2.0E-03                                       | Q8UKP4                   | SWISSPROT                     | ADAM-TS 7 PRECURSOR (A DISINTEGRIN AND METALLOPROTEINASE WITH THROMBOSPONDIN MOTIFS 7) (ADAMTS-7) (ADAM-TS7)    |
| 6515                   | 19880                 | 33050             | 0.75                 | 2.0E-03                                       | AV706075.1               | EST_HUMAN                     | AV706075 ADC Homo sapiens cDNA clone ADOAEF09 5'  |
| 6544                   | 19708                 | 33082             | 1.45                 | 2.0E-03                                       | X94451.1                 | NT                            | L. esculentum mRNA for lysyl-tRNA synthetase (LysRS)  |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 8824                   | 22884                 | 38553             | 0.6                  | 2.0E-03                                       | AF09732.1                | NT                            | Homo sapiens caspase recruitment domain-containing protein (BCL10) gene, complete cds   |
| 10118                  | 23157                 | 38755             | 0.96                 | 2.0E-03                                       | AW884289.1               | EST_HUMAN                     | QV8-OT0084-060400-144-e01 OT0084 Homo sapiens cDNA  |
| 10248                  | 23283                 |                   | 8.26                 | 2.0E-03                                       | AA251376.1               | EST_HUMAN                     | zs10808.s1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:684764 3'  |
| 10828                  | 23682                 | 37270             | 0.48                 | 2.0E-03                                       | BF367386.1               | EST_HUMAN                     | MIR2-CN0030-140800-001-e05 GN0030 Homo sapiens cDNA   |
| 11265                  | 24334                 |                   | 2.14                 | 2.0E-03                                       | M86524.1                 | NT                            | Human dystrophin gene   |
| 11778                  | 20850                 | 34342             | 3.79                 | 2.0E-03                                       | P07354                   | SWISSPROT                     | PROTEOGLYCAN LINK PROTEIN PRECURSOR (CARTILAGE LINK PROTEIN)(LP)  |
| 11836                  | 24825                 |                   | 2.98                 | 2.0E-03                                       | BF330808.1               | EST_HUMAN                     | RC9-BT0333-310800-115-g04 BT0333 Homo sapiens cDNA  |
| 11844                  | 24833                 | 38528             | 9.84                 | 2.0E-03                                       | Z11740.1                 | NT                            | H. sapiens variable number tandem repeat (VNTR) locus DNA   |
| 12180                  | 25140                 |                   | 3.37                 | 2.0E-03                                       | AB25745.1                | EST_HUMAN                     | Q25532 VACUOLAR ATP SYNTHASE SUBUNIT G ;  |
| 12188                  | 25159                 | 38833             | 4.31                 | 2.0E-03                                       | AF157516.2               | NT                            | Homo sapiens SEL1L (SEL1L) gene, partial cds  |
| 12222                  | 25171                 | 38836             | 1.71                 | 2.0E-03                                       | AB84325.1                | EST_HUMAN                     | oy43g.08.s1 Soares_parathyroid_tumor_NbHPA Homo sapiens cDNA clone IMAGE:1688534 3' similar to  |
| 12245                  | 18497                 |                   | 4.86                 | 2.0E-03                                       | AJ245187.1               | NT                            | TR:P97535 P97535 PS-PLA1 PRECURSOR ;  |
| 12462                  | 26140                 |                   | 4                    | 2.0E-03                                       | AV687968.1               | EST_HUMAN                     | Camelus dromedarius cvhp19 gene for immunoglobulin heavy chain variable region  |
| 12661                  | 25383                 | 32039             | 1.28                 | 2.0E-03                                       | Y00508.1                 | NT                            | AV687968 GKC Homo sapiens cDNA clone GKCGX005 5'  |
|                        |                       |                   |                      |   |                          |                               | H. sapiens M1 gene for muscarinic acetylcholine receptor  |
| 12897                  | 25594                 |                   | 1.38                 | 2.0E-03                                       | AF129756.1               | NT                            | Homo sapiens MSH55 gene, partial cds; and CLIC1, DDAH, G8b, G8c, G8d, G8e, G8f, BAT5, G8b, GSK2B, BAT4, G4, Apo M, BAT3, BAT2, AIF-1, 1C7, LST-1, LTB, TNF, and LTA genes, complete cds |
| 13060                  | 25927                 |                   | 2.48                 | 2.0E-03                                       | AV687968.1               | EST_HUMAN                     | AV687968 GKC Homo sapiens cDNA clone GKCGX005 5'  |
| 452                    | 13848                 | 26884             | 1.38                 | 1.0E-03                                       | H88471.1                 | EST_HUMAN                     | y88cd08.l1 Soares_pituitary_gland_N3-HPG Homo sapiens cDNA clone IMAGE:232334 5'  |
| 852                    | 14028                 | 27091             | 1.55                 | 1.0E-03                                       | AI720283.1               | EST_HUMAN                     | as701b08.x1 Barstead cdon HPLRB7 Homo sapiens cDNA clone IMAGE:2334039 3' similar to TR:Q13825  |
| 852                    | 14028                 | 27092             | 1.55                 | 1.0E-03                                       | AI720283.1               | EST_HUMAN                     | Q13825 AU-BINDING PROTEINENOYL-COA HYDRATASE ;  |
| 1119                   | 14284                 | 27339             | 2.61                 | 1.0E-03                                       | AI865788.1               | EST_HUMAN                     | as701b08.x1 Barstead cdon HPLRB7 Homo sapiens cDNA clone IMAGE:2334039 3' similar to TR:Q13825  |
| 1139                   | 14304                 | 27360             | 1.61                 | 1.0E-03                                       | AB954572.1               | EST_HUMAN                     | Q13825 AU-BINDING PROTEINENOYL-COA HYDRATASE ;  |
| 1192                   | 14354                 | 27412             | 0.85                 | 1.0E-03                                       | AI892016.1               | EST_HUMAN                     | as701b08.x1 Barstead cdon HPLRB7 Homo sapiens cDNA clone IMAGE:2422258 3'   |
| 2084                   | 15224                 | 28348             | 3.42                 | 1.0E-03                                       | P47803                   | SWISSPROT                     | wf88a08.s1 NCI_CGAP_Pan1 Homo sapiens cDNA clone IMAGE:2422258 3'   |
| 2222                   | 15356                 | 28486             | 9.62                 | 1.0E-03                                       | AJ131016.1               | NT                            | wf83a10.x1 NCI_CGAP_Mel15 Homo sapiens cDNA clone IMAGE:2551242 3'  |
| 3044                   | 16220                 | 28241             | 1.37                 | 1.0E-03                                       | AB033117.1               | NT                            | wf88a01.x1 NCI_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:2338440 3' similar to contains Alu repetitive element  |
| 3260                   | 16434                 | 28451             | 2.81                 | 1.0E-03                                       | P18915                   | SWISSPROT                     | HIGH MOLECULAR WEIGHT FORM OF MYOSIN I (HMYI/M)   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens SCL gene locus   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens mRNA for KIAA1281 protein, partial cds   |
|                        |                       |                   |                      |   |                          |                               | CARBONIC ANHYDRASE VI PRECURSOR (CARBONATE DEHYDRATASE VI) (CA-VI) (SECRETED)   |
|                        |                       |                   |                      |   |                          |                               | CARBONIC ANHYDRASE (SALIVARY CARBONIC ANHYDRASE)  |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Description   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 3260                   | 16434                 | 29452             | 2.81                 | 1.0E-03                                       | P18915                   | SWISSPROT                     | CARBONIC ANHYDRASE VI PRECURSOR (CARBONATE DEHYDRATASE VI) (CA-VI) (SECRETED)   |
| 3374                   | 16546                 | 29560             | 0.75                 | 1.0E-03                                       | P08547                   | SWISSPROT                     | CARBONIC ANHYDRASE (SALIVARY CARBONIC ANHYDRASE)  |
| 3632                   | 16796                 | 29813             | 0.94                 | 1.0E-03                                       | U68061.1                 | NT                            | LINE-1 REVERSE TRANSCRIPTASE HOMOLOG  |
| 3632                   | 16796                 | 29814             | 0.94                 | 1.0E-03                                       | U68061.1                 | NT                            | Human MUC2 gene, promoter region  |
| 3755                   | 16916                 |                   | 1.43                 | 1.0E-03                                       | AB044400.1               | NT                            | Human MUC2 gene, promoter region  |
| 4034                   | 17190                 | 30200             | 0.98                 | 1.0E-03                                       | AW170552.1               | EST_HUMAN                     | Homo sapiens SVMT gene for synaptic vesicle monoamine transporter, exons 14, 15   |
| 4044                   | 17200                 | 30211             | 0.91                 | 1.0E-03                                       | Z49849.1                 | NT                            | contains TAR1.11 TAR1 repetitive element:   |
| 4566                   | 17694                 | 30673             | 2.34                 | 1.0E-03                                       | BE839162.1               | EST_HUMAN                     | RC1-TN0128-160800-021-g01 TN0128 Homo sapiens cDNA  |
| 4588                   | 17735                 | 30715             | 4.89                 | 1.0E-03                                       | BE246538.1               | EST_HUMAN                     | TCBAP1D4909 Pediatric pre-B cell acute lymphoblastic leukemia Baylor-HGSC project=TCBA Homo sapiens cDNA clone TCBAP4909        |
| 4785                   | 17920                 | 30903             | 0.31                 | 1.0E-03                                       | U29449.1                 | NT                            | Caenorhabditis elegans spliced leader RNA (SL3 alpha), (SL4), and (SL5) genes   |
| 4945                   | 18075                 | 31050             | 2.54                 | 1.0E-03                                       | A073485.1                | EST_HUMAN                     | ov45c04.x1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:1840262 3'   |
| 4945                   | 18075                 | 31051             | 2.54                 | 1.0E-03                                       | A073485.1                | EST_HUMAN                     | ov45c04.x1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:1840262 3'   |
| 4946                   | 18076                 |                   | 6                    | 1.0E-03                                       | BE164067.1               | EST_HUMAN                     | PM0-HT0339-200400-010-D02 HT0339 Homo sapiens cDNA  |
| 5188                   | 18310                 | 31276             | 15.5                 | 1.0E-03                                       | O48409                   | SWISSPROT                     | APOLIPOPROTEIN A-IV PRECURSOR (APO-AIV)   |
| 5324                   | 18437                 | 31407             | 4.73                 | 1.0E-03                                       | BE219340.1               | EST_HUMAN                     | hw5102.x1 NCI CGAP Lu24 Homo sapiens cDNA clone IMAGE:3176955 3'  |
| 5423                   | 18624                 | 31600             | 2                    | 1.0E-03                                       | AA280951.1               | EST_HUMAN                     | ze4401.1 NCI CGAP_GCB1 Homo sapiens cDNA clone IMAGE:700345 5'  |
| 5518                   | 18716                 | 31730             | 3.57                 | 1.0E-03                                       | AJ006345.1               | NT                            | Homo sapiens KVLQT1 gene  |
| 5572                   | 18768                 | 31809             | 1.84                 | 1.0E-03                                       | K03332.1                 | NT                            | Epstein-Barr virus (AG876 isolate) U2-IR2 domain encoding nuclear protein EBNA2, complete cds                                   |
| 5572                   | 18768                 | 31810             | 1.84                 | 1.0E-03                                       | K03332.1                 | NT                            | Epstein-Barr virus (AG876 isolate) U2-IR2 domain encoding nuclear protein EBNA2, complete cds                                   |
| 5690                   | 18894                 | 32176             | 0.95                 | 1.0E-03                                       | BE798491.1               | EST_HUMAN                     | 601589841F1 NIH_MGC 7 Homo sapiens cDNA clone IMAGE:3943954 5'  |
| 5698                   | 18890                 | 32181             | 1.77                 | 1.0E-03                                       | Q02388                   | SWISSPROT                     | COLLAGEN ALPHA 1(VI) CHAIN PRECURSOR (LONG-CHAIN COLLAGEN) (LC COLLAGEN)  |
| 5751                   | 18943                 | 32244             | 0.9                  | 1.0E-03                                       | N41974.1                 | EST_HUMAN                     | yo07008.r1 Soares melanocyte 2NbhM Homo sapiens cDNA clone IMAGE:270587 5' similar to contains element MER6 repetitive element: |
| 5751                   | 18943                 | 32245             | 0.9                  | 1.0E-03                                       | N41974.1                 | EST_HUMAN                     | yo07008.r1 Soares melanocyte 2NbhM Homo sapiens cDNA clone IMAGE:270587 5' similar to contains element MER6 repetitive element: |
| 6033                   | 19216                 |                   | 0.99                 | 1.0E-03                                       | BF541039.1               | EST_HUMAN                     | 602068042F1 NIH_MGC 68 Homo sapiens cDNA clone IMAGE:4068907 5'   |
| 6144                   | 19322                 |                   | 2.75                 | 1.0E-03                                       | X07698.1                 | NT                            | Mouse nucleolin gene  |
| 6184                   | 19390                 | 32708             | 0.85                 | 1.0E-03                                       | BE963939.2               | EST_HUMAN                     | 601657519R1 NIH_MGC 93 Homo sapiens cDNA clone IMAGE:3875693 3'   |
| 6321                   | 19493                 |                   | 8.77                 | 1.0E-03                                       | 11626176                 | NT                            | Homo sapiens T-cell lymphoma invasion and metastasis 1 (TIAM1), mRNA  |
| 6464                   | 19631                 | 32992             | 1.11                 | 1.0E-03                                       | T87761.1                 | EST_HUMAN                     | yo83a11.r1 Soares fetal liver spleen 1NfLS Homo sapiens cDNA clone IMAGE:115772 5'  |
| 6538                   | 19702                 |                   | 1.68                 | 1.0E-03                                       | AW602585.1               | EST_HUMAN                     | QV3-NN1024-260400-171-g05 NN1024 Homo sapiens cDNA  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 6896                   | 20046                 | 33455             | 1.41                 | 1.0E-03                                       | L7570.1                  | NT                            | Homo sapiens DiGeorge syndrome critical region, centromeric and   |
| 7302                   | 20384                 | 33843             | 2.81                 | 1.0E-03                                       | D16828.1                 | NT                            | Human gene for fourth somatostatin receptor subtype   |
| 7656                   | 20724                 |                   | 1.12                 | 1.0E-03                                       | AJ226042.1               | NT                            | Homo sapiens 959 kb contig between AML1 and CBR1 on chromosome 21q22, segment 2/3   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens X28 region near ALD locus containing dual specificity phosphatase 9 (DUSP9), ribosomal protein L18a (RPL18a), Ca2+/Calmodulin-dependent protein kinase 1 (CAMK1), creatine transporter (CRTR), CDM protein (CDM), adrenoleukodystrophy protein > |
| 7817                   | 20872                 | 34370             | 1.98                 | 1.0E-03                                       | U52111.2                 | NT                            | Human TRPM-2 protein gene, exons 1,2 and 3  |
| 7885                   | 20337                 | 34443             | 3.44                 | 1.0E-03                                       | M63376.1                 | NT                            | 601491081F1 NIH_MGC 69 Homo sapiens cDNA clone IMAGE:3893276 5'   |
| 7934                   | 20384                 | 34492             | 0.79                 | 1.0E-03                                       | BE88044.1                | EST_HUMAN                     | Homo sapiens prolactin-releasing peptide receptor gene, 5' flanking region  |
| 8073                   | 21155                 | 34674             | 0.66                 | 1.0E-03                                       | AF274581.1               | NT                            | Homo sapiens partial stefin-1 gene  |
| 8136                   | 21218                 | 34739             | 5.02                 | 1.0E-03                                       | AJ251973.1               | NT                            | 2497c09.e1 Soares_pregnant_uterus_Nb4-PU Homo sapiens cDNA clone IMAGE:460768 3' similar to   |
| 8337                   | 21418                 | 34944             | 1.95                 | 1.0E-03                                       | AA122770.1               | EST_HUMAN                     | contains L1.1 L1 repetitive element;  |
| 8438                   | 21519                 | 35048             | 2.85                 | 1.0E-03                                       | AF163080.1               | NT                            | Homo sapiens exosome-like protein 1 (EXTL1) gene, exons 2 through 11, and complete cds  |
| 8825                   | 21705                 | 35241             | 0.75                 | 1.0E-03                                       | U28397.1                 | NT                            | Rattus norvegicus plasma membrane Ca2+-ATPase isoform 3 (PMCA3) gene, 5' flanking region  |
| 9144                   | 22223                 |                   | 1.48                 | 1.0E-03                                       | Y11204.1                 | NT                            | V-cardin gene encoding vchocapsin   |
| 9170                   | 22248                 | 35791             | 0.65                 | 1.0E-03                                       | AW840353.1               | EST_HUMAN                     | CM3-L-T0079-170200-092-407 LT0079 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens X28 region near ALD locus containing dual specificity phosphatase 9 (DUSP9), ribosomal protein L18a (RPL18a), Ca2+/Calmodulin-dependent protein kinase 1 (CAMK1), creatine transporter (CRTR), CDM protein (CDM), adrenoleukodystrophy protein > |
| 9281                   | 22357                 |                   | 0.85                 | 1.0E-03                                       | U62111.2                 | NT                            | Human class III alcohol dehydrogenase (ADH5) chi subunit mRNA, complete cds   |
| 9319                   | 22395                 | 35947             | 3.89                 | 1.0E-03                                       | M30471.1                 | NT                            | Human class III alcohol dehydrogenase (ADH5) chi subunit mRNA, complete cds   |
| 9319                   | 22395                 | 35948             | 3.89                 | 1.0E-03                                       | M30471.1                 | NT                            | Human class III alcohol dehydrogenase (ADH5) chi subunit mRNA, complete cds   |
|                        |                       |                   | 0.47                 | 1.0E-03                                       | AJ247482.1               | EST_HUMAN                     | gdx401.x1 Soares_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:1848673 3' similar to  |
| 9798                   | 22836                 |                   |                      |   |                          |                               | gdx401.x1 Soares_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:1848673 3' similar to  |
| 9807                   | 22847                 | 36424             | 2.06                 | 1.0E-03                                       | AF011400.1               | NT                            | Thermotoga neapolitana alpha-1,6-galactosidase (aglA) gene, complete cds  |
| 9807                   | 22847                 | 36425             | 2.06                 | 1.0E-03                                       | AF011400.1               | NT                            | Thermotoga neapolitana alpha-1,6-galactosidase (aglA) gene, complete cds  |
|                        |                       |                   | 0.86                 | 1.0E-03                                       | Q01129                   | SWISSPROT                     | BONE PROTEOGLYCAN II PRECURSOR (PG-S2) (DECORIN) (PG40) (DERMATAN SULFATE   |
| 10025                  | 23083                 | 36660             |                      |   |                          |                               | PROTEOGLYCAN-II) (DSPG)   |
| 10368                  | 23401                 | 37012             | 9.37                 | 1.0E-03                                       | AF003529.1               | NT                            | Homo sapiens glycican 3 (GP-C3) gene, partial cds and flanking repeat regions   |
| 10372                  | 23407                 |                   | 0.75                 | 1.0E-03                                       | AF007485.1               | NT                            | Homo sapiens transducin beta-like 2 (TBL2) gene, complete cds   |
|                        |                       |                   |                      |   |                          |                               | 077908.x1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:1643176 3' similar to contains MER39.b1   |
| 10522                  | 23557                 | 37165             | 1.08                 | 1.0E-03                                       | A024350.1                | EST_HUMAN                     | MER39 MER39 repetitive element;   |
| 10823                  | 23856                 | 37478             | 0.5                  | 1.0E-03                                       | AE004762.1               | NT                            | Pseudomonas aeruginosa PAO1, section 323 of the complete genome   |
| 10823                  | 23856                 | 37479             | 0.5                  | 1.0E-03                                       | AE004762.1               | NT                            | Pseudomonas aeruginosa PAO1, section 323 of the complete genome   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 10830                  | 23863                 |                   | 0.53                 | 1.0E-03                                       | AA706202.1               | EST_HUMAN                     | ag33f12.x1 Stratagene HNT neuron (#637233) Homo sapiens cDNA clone IMAGE:1142063 3' similar to contains Alu repetitive element |
| 10802                  | 23866                 | 37617             | 2.01                 | 1.0E-03                                       | AW362393.1               | EST_HUMAN                     | RC1-CT0278-181089-011-a08 CT0278 Homo sapiens cDNA   |
| 10802                  | 23866                 | 37618             | 2.01                 | 1.0E-03                                       | AW362393.1               | EST_HUMAN                     | RC1-CT0278-181089-011-a09 CT0278 Homo sapiens cDNA   |
| 10869                  | 24068                 | 37702             | 2.46                 | 1.0E-03                                       | BE170859.1               | EST_HUMAN                     | QV3-HT0543-220300-130-a03 HT0543 Homo sapiens cDNA   |
| 11062                  | 24138                 |                   | 2.03                 | 1.0E-03                                       | AI583847.1               | EST_HUMAN                     | tt73e12.x1 NCI_CGAP_HSC3 Homo sapiens cDNA clone IMAGE:2246448 3' similar to TR:Q26195 Q26195 PVA1 GENE:                       |
| 11426                  | 24488                 |                   | 2.63                 | 1.0E-03                                       | AV759949.1               | EST_HUMAN                     | AV759949 MDS Homo sapiens cDNA clone MDSDDF11 6'   |
| 11858                  | 24846                 | 38543             | 2.17                 | 1.0E-03                                       | P23468                   | SWISSPROT                     | PROTEIN-TYROSINE PHOSPHATASE DELTA PRECURSOR (R-PTP-DELTA)   |
| 11858                  | 24846                 | 38544             | 2.17                 | 1.0E-03                                       | P23468                   | SWISSPROT                     | PROTEIN-TYROSINE PHOSPHATASE DELTA PRECURSOR (R-PTP-DELTA)   |
| 11924                  | 24910                 | 38611             | 1.53                 | 1.0E-03                                       | P13002                   | SWISSPROT                     | PROTEIN GRANY-HEAD (DNA-BINDING PROTEIN ELF-1) (ELEMENT BINDING ACTIVITY) (TRANSCRIPTION FACTOR NTF-1)                         |
| 11824                  | 24910                 | 38612             | 1.53                 | 1.0E-03                                       | P13002                   | SWISSPROT                     | PROTEIN GRANY-HEAD (DNA-BINDING PROTEIN ELF-1) (ELEMENT BINDING ACTIVITY)  |
| 12176                  | 25136                 | 38831             | 5.51                 | 1.0E-03                                       | BE894488.1               | EST_HUMAN                     | 601433087F1 NIH_MGC_72 Homo sapiens cDNA clone IMAGE:3918524 5'  |
| 12679                  | 26118                 |                   | 7.37                 | 1.0E-03                                       | AI347355.1               | EST_HUMAN                     | ttc05h11.x1 NCI_CGAP_Cot18 Homo sapiens cDNA clone IMAGE:2063013 3' similar to contains Alu repetitive element                 |
| 12812                  | 26142                 | 31551             | 3.83                 | 1.0E-03                                       | BE780572.1               | EST_HUMAN                     | 601468878F1 NIH_MGC_67 Homo sapiens cDNA clone IMAGE:3872035 5'  |
| 12889                  | 26590                 |                   | 1.17                 | 1.0E-03                                       | 11465934                 | NT                            | Nicotiana tabacum chloroplast, complete genome   |
| 5327                   | 18440                 | 31409             | 0.7                  | 9.0E-04                                       | P08548                   | SWISSPROT                     | LINE-1 REVERSE TRANSCRIPTASE HOMOLOG   |
| 5759                   | 18989                 |                   | 2.08                 | 9.0E-04                                       | P06727                   | SWISSPROT                     | APOLPOPROTEIN A-IV PRECURSOR (APO-AIV)   |
| 6386                   | 19557                 |                   | 0.58                 | 9.0E-04                                       | AI006345.1               | NT                            | Homo sapiens KVLQ11 gene   |
| 6815                   | 19775                 | 33186             | 1.27                 | 9.0E-04                                       | P02381                   | SWISSPROT                     | MITOCHONDRIAL RIBOSOMAL PROTEIN VARI   |
| 9843                   | 22883                 |                   | 1.46                 | 9.0E-04                                       | AB037203.1               | NT                            | Glycyrrhiza glabra GgPAS1 mRNA for beta-amylin synthase, complete cds  |
| 1517                   | 14670                 |                   | 1.07                 | 8.0E-04                                       | X06469.1                 | NT                            | X.laevis mRNA for O4SR protein   |
| 4298                   | 17439                 |                   | 4.4                  | 8.0E-04                                       | P08547                   | SWISSPROT                     | LINE-1 REVERSE TRANSCRIPTASE HOMOLOG   |
| 4837                   | 18017                 | 31002             | 2.5                  | 8.0E-04                                       | U29185.1                 | NT                            | Homo sapiens prion protein (PrP) gene, complete cds  |
| 11412                  | 24473                 |                   | 2.59                 | 8.0E-04                                       | AA777084.1               | EST_HUMAN                     | z724c10.s1 Soares_fetal_heart_NBH119W Homo sapiens cDNA clone IMAGE:377874 3'  |
| 11576                  | 24631                 |                   | 1.87                 | 8.0E-04                                       | AI571089.1               | EST_HUMAN                     | tr55a08.x1 NCI_CGAP_U12 Homo sapiens cDNA clone IMAGE:2176310 3'   |
| 1874                   | 16018                 | 28127             | 1.11                 | 7.0E-04                                       | L41825.1                 | NT                            | Homo sapiens CYP17 gene, 5' and  |
| 2472                   | 15599                 | 28724             | 1.45                 | 7.0E-04                                       | U29185.1                 | NT                            | Homo sapiens prion protein (PrP) gene, complete cds  |
| 2778                   | 15894                 | 28004             | 1.33                 | 7.0E-04                                       | AL163210.2               | NT                            | Homo sapiens chromosome 21 segment HS21C010  |
| 3353                   | 16526                 | 28540             | 1.4                  | 7.0E-04                                       | 4885170                  | NT                            | Homo sapiens chromosome X open reading frame 8 (CXORF8) mRNA   |

Table 4  
Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 6221                   | 18398                 | 32745             | 0.93                 | 7.0E-04                                       | AA518212.1               | EST_HUMAN                     | ng65g12.s1 NCI_CGAP_Lip2 Homo sapiens cDNA clone IMAGE:939718 similar to contains L1.b3 L1 L1<br>repetitive element:                                 |
| 6842                   | 18801                 |                   | 2.33                 | 7.0E-04                                       | A1768331.1               | EST_HUMAN                     | wg3508.x1 Soares NSF_F8_9W_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:2367209 3'   |
| 7376                   | 20455                 |                   | 0.72                 | 7.0E-04                                       | AK024445.1               | NT                            | Homo sapiens mRNA for FLJ00335 protein, partial cds  |
| 10008                  | 23046                 | 36639             | 0.65                 | 7.0E-04                                       | P13497                   | SWISSPROT                     | BONE MORPHOGENETIC PROTEIN 1 PRECURSOR (BMP-1)   |
| 10008                  | 23046                 | 36640             | 0.65                 | 7.0E-04                                       | P13497                   | SWISSPROT                     | BONE MORPHOGENETIC PROTEIN 1 PRECURSOR (BMP-1)   |
| 11865                  | 24883                 |                   | 1.7                  | 7.0E-04                                       | U78027.1                 | NT                            | Homo sapiens Bruton's tyrosine kinase (BTK), alpha-D-galactosidase A (GLA), L44-like ribosomal protein<br>(L44L) and FTP3 (FTP3) genes, complete cds |
| 11863                  | 24881                 | 38578             | 3.76                 | 7.0E-04                                       | Z40561.1                 | EST_HUMAN                     | HSC28A072 normalized infant brain cDNA Homo sapiens cDNA clone c-28a07 3'  |
| 12723                  | 25481                 |                   | 9.28                 | 7.0E-04                                       | BE077941.1               | EST_HUMAN                     | CM1-BT0814-110300-142-b12 BT0814 Homo sapiens cDNA   |
| 13001                  | 25630                 |                   | 2.68                 | 7.0E-04                                       | R17336.1                 | EST_HUMAN                     | y913c08.r1 Soares Infant brain 1NIB Homo sapiens cDNA clone IMAGE:32298 5'   |
| 13038                  | 25682                 |                   | 5.43                 | 7.0E-04                                       | 6005855                  | NT                            | Homo sapiens Retina-derived POU-domain factor-1 (RPF-1), mRNA  |
| 2760                   | 15876                 |                   | 0.97                 | 6.0E-04                                       | BF341380.1               | EST_HUMAN                     | 602013339.F1 NCI_CGAP_Bm64 Homo sapiens cDNA clone IMAGE:4146287 5'  |
| 4069                   | 17225                 | 30232             | 1.64                 | 6.0E-04                                       | A1862525.1               | EST_HUMAN                     | wf13a11.x1 NCI_CGAP_Kid12 Homo sapiens cDNA clone IMAGE:2402876 3'   |
| 4201                   | 17350                 | 30341             | 0.65                 | 6.0E-04                                       | K01315.1                 | NT                            | Homo sapiens epsilon-1 pseudogene (IGH-EP1) gene, 5' flanking region   |
| 4201                   | 17350                 | 30342             | 0.65                 | 6.0E-04                                       | K01315.1                 | NT                            | Homo sapiens epsilon-1 pseudogene (IGH-EP1) gene, 5' flanking region   |
| 4301                   | 17444                 | 30430             | 3.91                 | 6.0E-04                                       | U45883.1                 | NT                            | Homo sapiens COR8 chemokine receptor (CMKBR8) gene, complete cds   |
| 4665                   | 17703                 | 30683             | 0.89                 | 6.0E-04                                       | BE173435.1               | EST_HUMAN                     | RC2-HT0560-190200-011-009 HT0560 Homo sapiens cDNA   |
| 4665                   | 17703                 | 30684             | 0.89                 | 6.0E-04                                       | BE173435.1               | EST_HUMAN                     | RC2-HT0560-190200-011-009 HT0560 Homo sapiens cDNA   |
| 8050                   | 21133                 |                   | 4.68                 | 6.0E-04                                       | P46408                   | SWISSPROT                     | GLUCOSE TRANSPORTER TYPE 5, SMALL INTESTINE (FRUCTOSE TRANSPORTER)   |
| 8205                   | 21287                 |                   | 0.51                 | 6.0E-04                                       | H82847.1                 | EST_HUMAN                     | y94crt1.s1 Soares pineal_gland_N3HPG Homo sapiens cDNA clone IMAGE:231856 3' similar to contains<br>LOR1 repetitive element;                         |
| 10165                  | 23222                 |                   | 3.26                 | 6.0E-04                                       | AL048507.2               | EST_HUMAN                     | DKFZp566M2024_r1 588 (synonym: hute1) Homo sapiens cDNA clone DKFZp566M2024  |
| 10215                  | 23261                 |                   | 0.53                 | 6.0E-04                                       | A1858288.1               | EST_HUMAN                     | w35g02.x1 NCI_CGAP_U1 Homo sapiens cDNA clone IMAGE:2426830 3'   |
| 10285                  | 23320                 | 36922             | 2.29                 | 6.0E-04                                       | BE005850.1               | EST_HUMAN                     | RC2-BN0120-250400-012-h11 BN0120 Homo sapiens cDNA   |
| 10547                  | 23582                 |                   | 0.84                 | 6.0E-04                                       | AF287478.1               | NT                            | Lycichinus variegatus embryonic blastocoele extracellular matrix protein precursor (ECM8) mRNA, complete<br>cds                                      |
| 11774                  | 24766                 | 38462             | 2.07                 | 6.0E-04                                       | AJ229042.1               | NT                            | Homo sapiens 959 kb contig between AML1 and CBR1 on chromosome 21q22, segment 2/3  |
| 11868                  | 24864                 | 38540             | 2.47                 | 6.0E-04                                       | AW013947.1               | EST_HUMAN                     | UH-B10-eab-e-09-QJL.s1 NCI_CGAP_Sub1 Homo sapiens cDNA clone IMAGE:2708825 3'  |
| 11937                  | 24923                 |                   | 1.62                 | 6.0E-04                                       | Q01768                   | SWISSPROT                     | NUCLEOSIDE DIPHOSPHATE KINASE B (NDK B) (NDP KINASE B) (NM22-M2) (P18)   |
| 12363                  | 26007                 |                   | 3.31                 | 6.0E-04                                       | AW380519.1               | EST_HUMAN                     | RC1-HT0269-261199-012-d08 HT0269 Homo sapiens cDNA   |
| 13228                  | 25797                 |                   | 14.14                | 6.0E-04                                       | A1817088.1               | EST_HUMAN                     | wf79g11.x1 NCI_CGAP_Lu18 Homo sapiens cDNA clone IMAGE:2408804 3' similar to contains element L1<br>repetitive element:                              |
| 668                    | 13854                 | 26882             | 7.86                 | 5.0E-04                                       | O10341                   | SWISSPROT                     | HYPOTHETICAL 29.3 KD PROTEIN (ORF92)   |

Page 194 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 1531                   | 14684                 |                   | 2.03                 | 5.0E-04                                       | AW851844.1               | EST_HUMAN                     | QV0-CT0225-021069-030-407 CT0225 Homo sapiens cDNA  |
| 3500                   | 16667                 | 26677             | 1.6                  | 5.0E-04                                       | AA548831.1               | EST_HUMAN                     | nt27411.s1 NCI_CGAP_Ccd11 Homo sapiens cDNA clone IMAGE:1014764 3' similar to contains Alu repetitive element   |
| 3809                   | 16669                 | 26672             | 0.94                 | 5.0E-04                                       | Q8UKP4                   | SWISSPROT                     | ADAM-TS 7 PRECURSOR (A DISINTEGRIN AND METALLOPROTEINASE WITH THROMBOSPONDIN MOTIFS 7) (ADAMTS-7) (ADAM-TS7)  |
| 5589                   | 18784                 | 31830             | 2.51                 | 5.0E-04                                       | AF248054.1               | NT                            | Bos taurus micromolar calcium activated neutral protease 1 (CAPN1) gene, exons 11-20, and partial cds   |
| 6765                   | 18921                 | 33317             | 7.06                 | 5.0E-04                                       | AA156080.1               | EST_HUMAN                     | z033038.t1 Stragene colon (#637204) Homo sapiens cDNA clone IMAGE:588663 5'   |
| 7534                   | 20607                 | 34062             | 9.01                 | 5.0E-04                                       | M23604.1                 | NT                            | Gorilla gorilla Involucrin gene medium allele, complete cds   |
| 8143                   | 21225                 | 34745             | 5.58                 | 5.0E-04                                       | AI185382.1               | EST_HUMAN                     | q013706.x1 Soares_placenta_8to9weeks_2NbHP8to9W Homo sapiens cDNA clone IMAGE:1723619 3' similar to gb:X51602_cds1 VASCULAR ENDOTHELIAL GROWTH FACTOR RECEPTOR 1 (HUMAN); contains Alu repetitive element |
| 8498                   | 21579                 | 35115             | 0.95                 | 5.0E-04                                       | AA814519.1               | EST_HUMAN                     | ds06402.s1 NCI_CGAP_CG081 Homo sapiens cDNA clone IMAGE:1330226 3' similar to contains element MER22 repetitive element   |
| 9477                   | 22534                 | 36098             | 1.67                 | 5.0E-04                                       | AA846545.1               | EST_HUMAN                     | ef56703.s1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:1394357 3'   |
| 9571                   | 22713                 | 36281             | 0.58                 | 5.0E-04                                       | N83785.1                 | EST_HUMAN                     | KK2746F Human fetal heart, Lambda ZAP Express Homo sapiens cDNA clone KK2746 5' similar to REPETITIVE ELEMENT   |
| 9718                   | 22763                 | 36354             | 0.64                 | 5.0E-04                                       | P29126                   | SWISSPROT                     | BIFUNCTIONAL ENDO-1,4-BETA-XYLANASE XYL A PRECURSOR   |
| 9809                   | 22843                 | 36428             | 4.78                 | 5.0E-04                                       | AW270898.1               | EST_HUMAN                     | xs06402.x1 NCI_CGAP_Kid11 Homo sapiens cDNA clone IMAGE:2768638 3'  |
| 10484                  | 23519                 |                   | 0.6                  | 5.0E-04                                       | U50871.1                 | NT                            | Human familial Alzheimer's disease (S1M2) gene, complete cds  |
| 11220                  | 24269                 |                   | 1.9                  | 5.0E-04                                       | AL048607.2               | EST_HUMAN                     | DKFZp386M2024_J1 306 (synonym: hater) Homo sapiens cDNA clone DKFZp386M2024   |
| 12012                  | 18784                 | 31830             | 15                   | 5.0E-04                                       | AF248054.1               | NT                            | Bos taurus micromolar calcium activated neutral protease 1 (CAPN1) gene, exons 11-20, and partial cds   |
| 12301                  | 25936                 |                   | 2.39                 | 5.0E-04                                       | AA588513.1               | EST_HUMAN                     | nf15h02.s1 NCI_CGAP_P11 Homo sapiens cDNA clone IMAGE:913875  |
| 12872                  | 26961                 |                   | 1.33                 | 5.0E-04                                       | U63834.1                 | NT                            | Human KIT protein and alternatively spliced KIT protein (KIT) gene, complete cds  |
| 403                    | 13600                 |                   | 0.76                 | 4.0E-04                                       | BF241482.1               | EST_HUMAN                     | 601876834F1 NIH_MGC_55 Homo sapiens cDNA clone IMAGE:4104887 5'   |
| 690                    | 13874                 | 26907             | 1.36                 | 4.0E-04                                       | U32748.1                 | NT                            | Haemophilus influenzae Rd section 63 of 193 of the complete genome  |
| 870                    | 14046                 | 27111             | 1.55                 | 4.0E-04                                       | AI720263.1               | EST_HUMAN                     | es70b08.x1 Barcode colon HPLRB7 Homo sapiens cDNA clone IMAGE:2334039 3' similar to TRCQ13825   |
| 870                    | 14046                 | 27112             | 1.55                 | 4.0E-04                                       | AI720263.1               | EST_HUMAN                     | Q13825 AU-BINDING PROTEINENYOYL-COA HYDRATASE ;   |
| 1463                   | 14646                 | 27728             | 5.68                 | 4.0E-04                                       | AW753358.1               | EST_HUMAN                     | es70b08.x1 Barcode colon HPLRB7 Homo sapiens cDNA clone IMAGE:2334039 3' similar to TRCQ13825   |
| 2148                   | 15284                 | 28410             | 1.87                 | 4.0E-04                                       | AL163278.2               | NT                            | RC3-CT0254-130100-023-01 CT0254 Homo sapiens cDNA   |
| 2202                   | 15337                 |                   | 1.1                  | 4.0E-04                                       | AL046704.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C078   |
|                        |                       |                   |                      |   |                          |                               | DKFZp34D059_r1 434 (synonym: hies3) Homo sapiens cDNA clone DKFZp34D059 5'  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 2691                   | 15811                 | 28827             | 2.04                 | 4.0E-04                                       | Q88616                   | SWISSPROT                     | SERPIN-2 (SILK GUM PROTEIN 2)  |
| 3233                   | 18407                 | 29420             | 2.78                 | 4.0E-04                                       | AF281074.1               | NT                            | Homo sapiens neuropilin 2 (NRP2) gene, complete cds, alternatively spliced                     |
| 3397                   | 16507                 | 29583             | 0.89                 | 4.0E-04                                       | AF202633.1               | EST_HUMAN                     | aa70608.x1 Barstead codon HPLRB7 Homo sapiens cDNA clone IMAGE:2334039 3' similar to TR:Q13825 |
| 3443                   | 16811                 | 29629             | 0.6                  | 4.0E-04                                       | AF696624.1               | EST_HUMAN                     | Q13825 AU-BINDING PROTEIN/ENOYL-COA HYDRATASE-1  |
| 4443                   | 17583                 | 30561             | 3.24                 | 4.0E-04                                       | AA576331.1               | EST_HUMAN                     | AV696824 GK0 Homo sapiens cDNA clone GKCFH07 5'  |
| 4443                   | 17683                 | 30582             | 3.24                 | 4.0E-04                                       | AA576331.1               | EST_HUMAN                     | nt10a10.s1 NCL CGAP_Cot1 Homo sapiens cDNA clone IMAGE:951830 3' similar to gb:M21121 T-CELL   |
| 4689                   | 17795                 | 30781             | 2.33                 | 4.0E-04                                       | AA086324.1               | EST_HUMAN                     | SPECIFIC RANTES PROTEIN PRECURSOR (HUMAN);   |
| 5199                   | 18320                 | 31289             | 3.82                 | 4.0E-04                                       | BE560680.1               | EST_HUMAN                     | nt10a10.s1 NCL CGAP_Cot1 Homo sapiens cDNA clone IMAGE:951830 3' similar to gb:M21121 T-CELL   |
| 7418                   | 20496                 | 33965             | 1.55                 | 4.0E-04                                       | P49442                   | SWISSPROT                     | EXTRA-CELLULAR CALCIUM-SENSING RECEPTOR PRECURSOR (GASR) (PARATHYROID CELL                     |
| 7705                   | 20770                 | 34468             | 0.95                 | 4.0E-04                                       | AL161586.2               | NT                            | CALCIUM-SENSING RECEPTOR   |
| 7896                   | 20948                 | 34468             | 0.8                  | 4.0E-04                                       | AU122079.1               | EST_HUMAN                     | Arabidopsis thaliana DNA chromosome 4, coding fragment No. 68                                  |
| 8733                   | 21813                 | 35348             | 3.84                 | 4.0E-04                                       | BF240712.1               | EST_HUMAN                     | AU122079 MAMMA1 Homo sapiens cDNA clone MAMMA1001820 5'  |
| 8741                   | 21820                 | 35354             | 1.08                 | 4.0E-04                                       | N25507.1                 | EST_HUMAN                     | 60187685F1 NIH_MGC_55 Homo sapiens cDNA clone IMAGE:4098700 5'                                 |
| 8892                   | 22832                 | 36515             | 3.37                 | 4.0E-04                                       | AI026686.1               | EST_HUMAN                     | yc39e12.r1 Soares melanocyte 2NBM Homo sapiens cDNA clone IMAGE:264142 5'                      |
| 10045                  | 23083                 |                   | 1.12                 | 4.0E-04                                       | AF022855.1               | NT                            | ov87h03.s1 Soares_bests_NHT Homo sapiens cDNA clone IMAGE:1844341 3'                           |
| 12681                  | 25908                 |                   | 1.56                 | 4.0E-04                                       | AF254822.1               | NT                            | Mus musculus neuropilin-2 (a17) mRNA, alternatively spliced, complete cds                      |
| 180                    | 13385                 | 26415             | 9.21                 | 3.0E-04                                       | AL119426.1               | EST_HUMAN                     | Homo sapiens SMARCA4 isoform (SMARCA4) gene, complete cds, alternatively spliced               |
| 200                    | 13423                 | 26454             | 1.7                  | 3.0E-04                                       | P49259                   | SWISSPROT                     | DKFZp761J221.1 761 (synonym: hamy2) Homo sapiens cDNA clone DKFZp761J221 5'                    |
| 803                    | 14078                 | 27144             | 1.63                 | 3.0E-04                                       | U83981.1                 | NT                            | 180 KD SECRETORY PHOSPHOLIPASE A2 RECEPTOR PRECURSOR (PLA2-R)                                  |
| 1886                   | 15030                 | 28137             | 1.7                  | 3.0E-04                                       | A282100.1                | EST_HUMAN                     | Human short chain acyl CoA dehydrogenase gene, exons 1 and 2                                   |
| 1901                   | 15044                 |                   | 0.97                 | 3.0E-04                                       | A398674.1                | EST_HUMAN                     | q228403.y1 NCL CGAP_Kd11 Homo sapiens cDNA clone IMAGE:2028197 5'                              |
| 3393                   | 16554                 | 29588             | 4.35                 | 3.0E-04                                       | P26147                   | SWISSPROT                     | nt23a02.x1 NCL CGAP_P28 Homo sapiens cDNA clone IMAGE:2119082 3'                               |
| 4071                   | 17227                 | 30234             | 4.94                 | 3.0E-04                                       | P49448                   | SWISSPROT                     | INTERNALIN B PRECURSOR   |
| 4187                   | 17317                 |                   | 1.36                 | 3.0E-04                                       | A1271735.1               | NT                            | GLUTAMATE DEHYDROGENASE 2 PRECURSOR (GDH)  |
| 4205                   | 17354                 |                   | 1.06                 | 3.0E-04                                       | BE140609.1               | EST_HUMAN                     | Homo sapiens Xq pseudautosomal region; segment 1/2   |
| 4635                   | 17771                 |                   | 1.16                 | 3.0E-04                                       | BE148548.1               | EST_HUMAN                     | RC0-H70014-310560-028 HT0014 Homo sapiens cDNA   |
| 4637                   | 18087                 |                   | 5.2                  | 3.0E-04                                       | BE153778.1               | EST_HUMAN                     | MRO-HT0241-030200-008-e01 HT0241 Homo sapiens cDNA   |
| 5004                   | 18133                 | 31107             | 0.85                 | 3.0E-04                                       | AW687723.1               | EST_HUMAN                     | PMO-HT0339-190200-007-g12 HT0339 Homo sapiens cDNA   |
| 6271                   | 19445                 |                   | 5.56                 | 3.0E-04                                       | AL163281.2               | NT                            | QV3-DT0045-221289-048-008 DT0045 Homo sapiens cDNA   |
| 6869                   | 20187                 | 33611             | 1.64                 | 3.0E-04                                       | AL163278.2               | NT                            | Homo sapiens chromosome 21 segment HS21C081  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens chromosome 21 segment HS21C078  |

Page 196 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 7130                   | 18556                 | 31471             | 0.57                 | 3.0E-04                                       | AW893981.1               | EST_HUMAN                     | RC4-NN027-080400-011-008 NN027 Homo sapiens cDNA   |
| 7765                   | 20824                 | 34316             | 0.73                 | 3.0E-04                                       | P23468                   | SWISSPROT                     | PROTEIN-TYROSINE PHOSPHATASE DELTA PRECURSOR (R-PTP-DELTA)   |
| 8454                   | 21535                 | 35085             | 2.16                 | 3.0E-04                                       | P22807                   | SWISSPROT                     | FIBROBLAST GROWTH FACTOR RECEPTOR 3 PRECURSOR (FGFR-3)   |
| 10124                  | 23162                 | 36760             | 1.26                 | 3.0E-04                                       | AA454055.1               | EST_HUMAN                     | z448408.t1 Scores_testis_NHT Homo sapiens cDNA clone IMAGE:785471 5' similar to gb:M82762  |
| 10381                  | 23416                 | 37025             | 0.46                 | 3.0E-04                                       | AJ892139.1               | EST_HUMAN                     | VACUOLAR ATP SYNTHASE 16 KD PROTEOLIPID SUBUNIT (HUMAN);<br>w476a11.t1 Scores_thymus_NHT Homo sapiens cDNA clone IMAGE:2513276 3'  |
| 10676                  | 23710                 | 37318             | 1.96                 | 3.0E-04                                       | AA781201.1               | EST_HUMAN                     | aj24g05.a1 Scores_testis_NHT Homo sapiens cDNA clone 1391288 3' similar to gb:M36072 60S<br>RIBOSOMAL PROTEIN L7A (HUMAN);<br>nc38e04.t1 NCI_QGAP_P12 Homo sapiens cDNA clone IMAGE:1010430 similar to contains L1.t2 L1<br>repetitive element;                      |
| 12249                  | 26164                 | 31555             | 2.39                 | 3.0E-04                                       | AA228301.1               | EST_HUMAN                     | Homo sapiens mRNA for KIAA0749 protein, partial cds  |
| 12846                  | 25987                 | 31769             | 2.54                 | 3.0E-04                                       | AB018292.1               | NT                            | DKFZp547L185.t1 547 (synonym: tfr1) Homo sapiens cDNA clone DKFZp547L185 5'  |
| 13114                  | 26727                 |                   | 4.81                 | 3.0E-04                                       | AL134483.1               | EST_HUMAN                     | Homo sapiens SCG10 like-protein, helicase-like protein NHL, M88, and ADP-ribosylation factor related<br>protein 1 (ARFRP1) genes, complete cds   |
| 180                    | 19403                 | 26432             | 1.33                 | 2.0E-04                                       | AF217798.1               | NT                            | AU146707 HEMBB1 Homo sapiens cDNA clone HEMBB1001253 3'  |
| 491                    | 13683                 | 26719             | 2.67                 | 2.0E-04                                       | AU146707.1               | EST_HUMAN                     | Human dyotrophin gene  |
| 830                    | 14105                 | 27168             | 5.02                 | 2.0E-04                                       | M86524.1                 | NT                            | Human dystrophin gene  |
| 830                    | 14105                 | 27169             | 5.02                 | 2.0E-04                                       | M86524.1                 | NT                            | Human dystrophin gene  |
| 1206                   | 14968                 |                   | 2.78                 | 2.0E-04                                       | AJ286021.1               | EST_HUMAN                     | qh89e11.x1 Scores_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:1855052 3' similar to contains<br>MER3.b2 MER3 repetitive element;  |
| 1213                   | 14974                 |                   | 2.5                  | 2.0E-04                                       | AL163203.2               | NT                            | Homo sapiens chromosome 21 segment HS21C003  |
| 1879                   | 15023                 |                   | 1.71                 | 2.0E-04                                       | AF224288.1               | NT                            | Mus musculus 5' flanking region of Ptd3 gene   |
| 2257                   | 15380                 |                   | 1.21                 | 2.0E-04                                       | AA476980.1               | EST_HUMAN                     | zu33b05.e1 Scores_ovary_tumor_NbHOT Homo sapiens cDNA clone IMAGE:740337 3' similar to contains AU<br>repetitive element;  |
| 2841                   | 15764                 | 28878             | 6.42                 | 2.0E-04                                       | U88091.1                 | NT                            | Human gamma T-cell receptor beta chain TCRBV17S1A1T, TCRBV23S1, TCRBV10S1P, TCRBV29S1P,<br>TCRBV18S1P, TCRBV16S1, TCRBV11S1A1T, HVB relic, TCRBV28S1P, TCRBV34S1, TCRBV14S1,<br>TCRBV33S1, TCRBV45S1A1T, TRY4, TRY5, TRY6, TRY7, TRY8, TCRBD1, TCRBJ19S1, TCRBJ19S2> |
| 3052                   | 16228                 | 28248             | 1.23                 | 2.0E-04                                       | AI124529.1               | EST_HUMAN                     | am58cd09.x1 Johnston frontal cortex Homo sapiens cDNA clone IMAGE:1639760 3'   |
| 3415                   | 16584                 | 29600             | 0.82                 | 2.0E-04                                       | 5174736                  | NT                            | Homo sapiens tubulin, beta, 4 (TUBB4) mRNA   |
| 3622                   | 16988                 | 29697             | 2.56                 | 2.0E-04                                       | BE082317.1               | EST_HUMAN                     | QV2-5T0638-070500-184-607 BT0638 Homo sapiens cDNA   |
| 4022                   | 17178                 | 30187             | 0.98                 | 2.0E-04                                       | AW978441.1               | EST_HUMAN                     | EST390550 IMAGE resequences, MAGP Homo sapiens cDNA  |
| 4261                   | 17406                 |                   | 5.5                  | 2.0E-04                                       | U01029.1                 | NT                            | Phasodius vulgaris nitrate reductase (PVNR2) gene, complete cds  |
| 4791                   | 17926                 | 30914             | 1.75                 | 2.0E-04                                       | H08295.1                 | EST_HUMAN                     | yu01e11.t1 Scores_pituitary_gland_N3H-PG Homo sapiens cDNA clone IMAGE:232556 5'   |
| 4791                   | 17926                 | 30915             | 1.75                 | 2.0E-04                                       | H08295.1                 | EST_HUMAN                     | yu01e11.t1 Scores_pituitary_gland_N3H-PG Homo sapiens cDNA clone IMAGE:232556 5'   |

Page 197 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 4916                   | 18048                 |                   | 1.22                 | 2.0E-04                                       | U09226.1                 | NT                            | Gallus gallus proteasome 28 kDa subunit homolog mRNA, complete cds  |
| 5171                   | 18293                 | 31256             | 1.47                 | 2.0E-04                                       | AB037897.1               | NT                            | Danio rerio hagerman gene, exons 1 to 6, partial cds  |
| 5216                   | 18337                 | 31310             | 0.92                 | 2.0E-04                                       | AF057010.1               | NT                            | Dicotyledon discoidium Interaphin (abpD) gene, complete cds   |
| 5601                   | 18653                 | 32136             | 1.11                 | 2.0E-04                                       | AY654362.1               | EST_HUMAN                     | AV654362 GLC Homo sapiens cDNA clone GLC01H10.3'  |
| 5674                   | 18668                 | 32154             | 1.63                 | 2.0E-04                                       | AI680662.1               | EST_HUMAN                     | h03b11.x1 NCI_CGAP_U13 Homo sapiens cDNA clone IMAGE:2207708.3'   |
| 5668                   | 19058                 | 32365             | 0.93                 | 2.0E-04                                       | AA206632.1               | EST_HUMAN                     | EST11191 Uterus Homo sapiens cDNA 5' and similar to EST containing O family repeat                          |
| 6068                   | 19260                 | 32678             | 0.92                 | 2.0E-04                                       | AF140708.1               | NT                            | Homo sapiens cell cycle progression 3 protein (DNJ3) mRNA   |
| 6368                   | 19338                 | 32897             | 1.01                 | 2.0E-04                                       | AF140708.1               | NT                            | Mus musculus G protein coupled receptor gene, complete cds; and unknown gene                                |
| 7378                   | 20457                 |                   | 2.57                 | 2.0E-04                                       | AL121712.1               | EST_HUMAN                     | AL121712 MAMMA1 Homo sapiens cDNA clone MAMMA1000798.5'   |
| 7478                   | 20553                 |                   | 0.84                 | 2.0E-04                                       | AW860963.1               | EST_HUMAN                     | QV0-CT0387-180300-167-e10 CT0387 Homo sapiens cDNA  |
| 7798                   | 20854                 |                   | 13.68                | 2.0E-04                                       | P08548                   | SWISSPROT                     | LINE-1 REVERSE TRANSCRIPTASE HOMOLOG  |
|                        |                       |                   |                      |   |                          |                               | MYOMESIN 2 (M-PROTEIN) (165 KD TITIN-ASSOCIATED PROTEIN) (165 KD CONNECTIN-ASSOCIATED PROTEIN)              |
| 7808                   | 20863                 | 34357             | 1.45                 | 2.0E-04                                       | P64286                   | SWISSPROT                     | ASSOCIATED PROTEIN  |
| 8142                   | 21224                 | 34743             | 1.02                 | 2.0E-04                                       | U32444.2                 | NT                            | Solanum lycopersicum phytochrome F (PHYF) gene, partial cds   |
| 8142                   | 21224                 | 34744             | 1.02                 | 2.0E-04                                       | U32444.2                 | NT                            | Solanum lycopersicum phytochrome F (PHYF) gene, partial cds   |
| 8479                   | 21560                 | 35094             | 1.24                 | 2.0E-04                                       | AB026898.1               | NT                            | Homo sapiens DNA, DLEC1 to ORCTL4 gene region, section 1/2 (DLEC1, ORCTL3, ORCTL4 genes, complete cds)      |
| 8479                   | 21560                 | 35095             | 1.24                 | 2.0E-04                                       | AB026898.1               | NT                            | Homo sapiens DNA, DLEC1 to ORCTL4 gene region, section 1/2 (DLEC1, ORCTL3, ORCTL4 genes, complete cds)      |
| 8763                   | 21842                 | 35363             | 2.14                 | 2.0E-04                                       | AF020503.1               | NT                            | Homo sapiens FRA3B common fragile region, disadenosine triphosphate hydrolase (FHT) gene, exon 5            |
| 8941                   | 22020                 | 35561             | 0.57                 | 2.0E-04                                       | X57331.1                 | NT                            | Human immunoglobulin C(mu) and C(delta) heavy chain genes (constant regions)                                |
| 8935                   | 22800                 | 36173             | 0.58                 | 2.0E-04                                       | AA725700.1               | EST_HUMAN                     | a22a12.s1 Soares Testis_NHT Homo sapiens cDNA clone 1343518.3'  |
| 8818                   | 22874                 | 36244             | 0.47                 | 2.0E-04                                       | P18715                   | SWISSPROT                     | GASTRULA ZINC FINGER PROTEIN XLG28.1  |
| 10180                  | 23217                 | 36808             | 1.16                 | 2.0E-04                                       | BE146803.1               | EST_HUMAN                     | RC3-HT0254-151069-011-505 HT0254 Homo sapiens cDNA  |
| 10223                  | 23259                 | 36847             | 2.05                 | 2.0E-04                                       | AA405777.1               | EST_HUMAN                     | z68c11.1 Soares Testis_NHT Homo sapiens cDNA clone IMAGE:742964.5'  |
| 11088                  | 24162                 | 37788             | 3.86                 | 2.0E-04                                       | AV730373.1               | EST_HUMAN                     | AV730373 HTF Homo sapiens cDNA clone HTFAA01.5'   |
|                        |                       |                   |                      |   |                          |                               | h01f11.x1 NCI_CGAP_Gas4 Homo sapiens cDNA clone IMAGE:2140269.3' similar to contains Alu repetitive element |
| 11585                  | 24638                 | 38318             | 2.89                 | 2.0E-04                                       | AI440282.1               | EST_HUMAN                     | UHFBI1-ctm-c-04-U1.s1 NCI_CGAP_Sub3 Homo sapiens cDNA clone IMAGE:2717160.3'                                |
| 11710                  | 24750                 | 38443             | 2.39                 | 2.0E-04                                       | AW136740.1               | EST_HUMAN                     | RC2-BT0317-150200-011-h04 BT0317 Homo sapiens cDNA  |
| 11859                  | 24847                 |                   | 2.71                 | 2.0E-04                                       | BE066781.1               | EST_HUMAN                     | HYPOTHETICAL 28.1 KD PROTEIN IN CRYB1.5 REGION (ORF2)   |
| 12106                  | 25086                 | 38780             | 32.04                | 2.0E-04                                       | P21733                   | SWISSPROT                     | Caenorhabditis elegans homeodomain protein (lin-39) mRNA, complete cds                                      |
| 12121                  | 25101                 | 38806             | 2.05                 | 2.0E-04                                       | L18248.1                 | NT                            | Homo sapiens DNA for amyloid precursor protein, complete cds  |
| 13191                  | 26179                 |                   | 1.28                 | 2.0E-04                                       | D87675.1                 | NT                            |   |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 788                    | 13067                 | 27018             | 0.96                 | 1.0E-04                                       | H99646.1                 | EST_HUMAN                     | y28c09.s1 Soares melanocyte 2Nblm Homo sapiens cDNA clone IMAGE:282884 3' similar to contains L1.1 L1 repetitive element;   |
| 1100                   | 14266                 | 27322             | 2.86                 | 1.0E-04                                       | P11369                   | SWISSPROT                     | RETROVIRUS-RELATED POLYPROTEIN [CONTAINS: REVERSE TRANSCRIPTASE ;<br>ENDONUCLEASE]  |
| 1138                   | 14303                 | 27358             | 3.79                 | 1.0E-04                                       | AW013847.1               | EST_HUMAN                     | UHH-B10-aab-e-09-0-U1.s1 NCI_CGAP_Sub1 Homo sapiens cDNA clone IMAGE:2708825 3'   |
| 1138                   | 14303                 | 27359             | 3.79                 | 1.0E-04                                       | AW013847.1               | EST_HUMAN                     | UHH-B10-aab-e-09-0-U1.s1 NCI_CGAP_Sub1 Homo sapiens cDNA clone IMAGE:2708825 3'   |
| 1363                   | 14517                 |                   | 2.65                 | 1.0E-04                                       | U62818.1                 | NT                            | Anguilla anguilla dopaminergic D1A1 receptor (d1A1) gene, complete cds  |
|                        |                       |                   |                      |   |                          |                               | Kaposi's sarcoma-associated herpesvirus ORF 68 gene, partial cds; and ORF 69, kaposin, v-FLIP, v-cyclin, latent nuclear antigen, ORF K14, v-GPCR, putative phosphatidylinositol 3-kinase, and LAMP (LAMP) genes, complete cds |
| 1657                   | 14810                 | 27894             | 4.23                 | 1.0E-04                                       | AF148805.1               | NT                            | Kaposi's sarcoma-associated herpesvirus ORF 68 gene, partial cds; and ORF 69, kaposin, v-FLIP, v-cyclin, latent nuclear antigen, ORF K14, v-GPCR, putative phosphatidylinositol 3-kinase, and LAMP (LAMP) genes, complete cds |
| 1657                   | 14810                 | 27895             | 4.23                 | 1.0E-04                                       | AF148805.1               | NT                            | Kaposi's sarcoma-associated herpesvirus ORF 68 gene, partial cds; and ORF 69, kaposin, v-FLIP, v-cyclin, latent nuclear antigen, ORF K14, v-GPCR, putative phosphatidylinositol 3-kinase, and LAMP (LAMP) genes, complete cds |
| 1808                   | 15082                 | 28164             | 2.02                 | 1.0E-04                                       | AB048942.1               | NT                            | Equus caballus DNA, chromosome 24q14, microsatellite TKY38  |
| 2752                   | 15898                 | 28878             | 1.06                 | 1.0E-04                                       | BE218633.1               | EST_HUMAN                     | h45c08.x1 NCI_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3176368 3'  |
| 2762                   | 15899                 | 28879             | 1.08                 | 1.0E-04                                       | BE218633.1               | EST_HUMAN                     | h45c08.x1 NCI_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3176368 3'  |
| 3356                   | 16528                 | 29543             | 1.18                 | 1.0E-04                                       | Q62203                   | SWISSPROT                     | SPLICING FACTOR 3A SUBUNIT 2 (SF3A66)   |
| 3828                   | 16986                 | 29982             | 0.86                 | 1.0E-04                                       | AJ440282.1               | EST_HUMAN                     | h01111.x1 NCI_CGAP_Gas4 Homo sapiens cDNA clone IMAGE:2140289 3' similar to contains Alu repetitive element   |
| 4171                   | 17321                 | 30314             | 1.72                 | 1.0E-04                                       | M14042.1                 | NT                            | Mouse alpha 1 type-IV collagen mRNA   |
| 4192                   | 17342                 | 30335             | 1.12                 | 1.0E-04                                       | AV847727.1               | EST_HUMAN                     | AV847727 GLC Homo sapiens cDNA clone GLC8BD04 3'  |
| 5207                   | 18328                 | 31288             | 1.24                 | 1.0E-04                                       | 7662015                  | NT                            | Homo sapiens KIAA0237 gene product (KIAA0237), mRNA   |
| 5207                   | 18328                 | 31289             | 1.24                 | 1.0E-04                                       | 7662015                  | NT                            | Homo sapiens KIAA0237 gene product (KIAA0237), mRNA   |
| 5980                   | 19166                 | 32486             | 1.35                 | 1.0E-04                                       | P08547                   | SWISSPROT                     | LINE-1 REVERSE TRANSCRIPTASE HOMOLOG  |
| 6569                   | 19731                 | 33109             | 0.95                 | 1.0E-04                                       | AA177111.1               | EST_HUMAN                     | h020212.s1 NCI_CGAP_P3 Homo sapiens cDNA clone IMAGE:252  |
| 6977                   | 20205                 | 33633             | 0.88                 | 1.0E-04                                       | AA594581.1               | EST_HUMAN                     | h256d04.s1 NCI_CGAP_AA1 Homo sapiens cDNA clone IMAGE:383486 3' similar to gb-M27262  |
| 7336                   | 20417                 | 33878             | 12.52                | 1.0E-04                                       | AJ251980.1               | EST_HUMAN                     | KALLMANN SYNDROME PROTEIN PRECURSOR (HUMAN); contains Alu repetitive element  |
| 7744                   | 20417                 | 33878             | 13.49                | 1.0E-04                                       | AJ251980.1               | EST_HUMAN                     | q67d10.x1 NCI_CGAP_Ox2 Homo sapiens cDNA clone IMAGE:1985683 3'   |
| 8184                   | 21268                 | 34789             | 1.02                 | 1.0E-04                                       | AA630453.1               | EST_HUMAN                     | q67d10.x1 NCI_CGAP_Ox2 Homo sapiens cDNA clone IMAGE:1985683 3'   |
| 9538                   | 22603                 | 36175             | 2.75                 | 1.0E-04                                       | AJ806220.1               | EST_HUMAN                     | ab94p08.s1 Stratiotes lung (#837210) Homo sapiens cDNA clone IMAGE:854654 3'  |
| 9548                   | 22613                 | 36182             | 1.54                 | 1.0E-04                                       | O68959                   | SWISSPROT                     | w28a08.x1 Soares NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2356742 3'  |
| 9625                   | 22680                 |                   | 0.76                 | 1.0E-04                                       | T77153.1                 | EST_HUMAN                     | CYSTATIN-RELATED EPIDIDYMAL SPERMATOGENIC PROTEIN PRECURSOR (CYSTATIN 6)  |
| 9846                   | 22886                 | 36486             | 1.06                 | 1.0E-04                                       | 10863876                 | NT                            | yf72c08.l1 Soares fetal liver spleen 1NLS Homo sapiens cDNA clone IMAGE:113774 5'   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens phospholipid scramblase 1 (PLSCR1), mRNA   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 10382                  | 23417                 |                   | 3.59                 | 1.0E-04                                       | P08547                   | SWISSPROT                     | LINE-1 REVERSE TRANSCRIPTASE HOMOLOG  |
| 10420                  | 23455                 | 37060             | 1.12                 | 1.0E-04                                       | P08548                   | SWISSPROT                     | LINE-1 REVERSE TRANSCRIPTASE HOMOLOG  |
| 10775                  | 23908                 | 37431             | 0.46                 | 1.0E-04                                       | P51786                   | SWISSPROT                     | ZINC FINGER PROTEIN 157   |
| 11622                  | 24673                 |                   | 2.3                  | 1.0E-04                                       | M28537.1                 | NT                            | Mouse alpha leukocyte interferon gene, complete cds   |
| 11650                  | 24636                 | 38637             | 1.81                 | 1.0E-04                                       | AB032968.1               | NT                            | Homo sapiens mRNA for KIAA1142 protein, partial cds   |
| 11961                  | 24976                 | 38680             | 1.94                 | 1.0E-04                                       | AW269061.1               | EST_HUMAN                     | xx48g12.x1 Soares_NFL_T_GBC_ST Homo sapiens cDNA clone IMAGE:2816518 3'   |
| 12024                  | 25008                 | 38709             | 1.57                 | 1.0E-04                                       | Q03696                   | SWISSPROT                     | NEURONAL-GLIAL CELL ADHESION MOLECULE PRECURSOR (NG-CAM)  |
| 12024                  | 25008                 | 38710             | 1.57                 | 1.0E-04                                       | Q03696                   | SWISSPROT                     | NEURONAL-GLIAL CELL ADHESION MOLECULE PRECURSOR (NG-CAM)  |
| 716                    | 13898                 | 26836             | 2.44                 | 9.0E-05                                       | AA718933.1               | EST_HUMAN                     | ef45c11.s1 Soares_testis_NHT Homo sapiens cDNA clone 1282468 3'   |
| 4198                   | 17346                 | 30338             | 1.13                 | 9.0E-05                                       | AF762209.1               | EST_HUMAN                     | wf54c11.x1 NCI_CGAP_Cot18 Homo sapiens cDNA clone IMAGE:2394068 3' similar to contains MIER6.11   |
| 6084                   | 19263                 | 32595             | 1.37                 | 9.0E-05                                       | Q60716                   | SWISSPROT                     | MIER6 repetitive element  |
| 7751                   | 20811                 | 34307             | 2.44                 | 9.0E-05                                       | AW204958.1               | EST_HUMAN                     | PROLYL 4-HYDROXYLASE ALPHA-2 SUBUNIT PRECURSOR  |
| 7751                   | 20811                 | 34302             | 2.44                 | 9.0E-05                                       | AW204958.1               | EST_HUMAN                     | UIH-B1-ae-4-05-0-UI.s1 NCI_CGAP_Sub3 Homo sapiens cDNA clone IMAGE:2720289 3'   |
| 9677                   | 22639                 |                   | 3.03                 | 9.0E-05                                       | D85606.1                 | NT                            | UIH-B1-ae-4-05-0-UI.s1 NCI_CGAP_Sub3 Homo sapiens cDNA clone IMAGE:2720289 3'   |
| 9679                   | 22641                 | 38211             | 3.3                  | 9.0E-05                                       | AF120982.1               | NT                            | Homo sapiens gene for cholesterylol type-A receptor, complete cds   |
| 11402                  | 24463                 | 38127             | 2.31                 | 9.0E-05                                       | AW073078.1               | EST_HUMAN                     | Homo sapiens methyl-OpG binding protein 1 (MBD1) gene, exon 15b   |
| 11518                  | 24574                 | 38251             | 1.61                 | 9.0E-05                                       | AL267878.1               | EST_HUMAN                     | xa34g05.x1 NCI_CGAP_Br18 Homo sapiens cDNA clone IMAGE:2568728 3' similar to contains L1.12 L1  |
| 11916                  | 19266                 | 32595             | 3.41                 | 9.0E-05                                       | Q60716                   | SWISSPROT                     | repetitive element  |
|                        |                       |                   |                      |   |                          |                               | q123f06.x1 NCI_CGAP_Lym8 Homo sapiens cDNA clone IMAGE:1982435 3' similar to contains element   |
|                        |                       |                   |                      |   |                          |                               | MIR repetitive element  |
|                        |                       |                   |                      |   |                          |                               | PROLYL 4-HYDROXYLASE ALPHA-2 SUBUNIT PRECURSOR  |
| 12469                  | 28016                 |                   | 3.37                 | 9.0E-05                                       | AF129756.1               | NT                            | Homo sapiens MSH55 gene, partial cds; and CLIC1, DD4H, G8b, G8c, G8d, G8e, G8f, BAT5, G5b, CSK2B, BAT4, G4, Apo M, BAT3, BAT2, AIF-1, 1C7, LST-1, LTB, TNF, and LTA genes, complete cds |
| 844                    | 14022                 | 27080             | 1.22                 | 8.0E-05                                       | AJ251646.1               | NT                            | Pisum sativum mRNA for beta-1,3 glucanase (gns2 gene)   |
| 887                    | 14063                 |                   | 3.11                 | 8.0E-05                                       | AJ251646.1               | NT                            | Pisum sativum mRNA for beta-1,3 glucanase (gns2 gene)   |
| 9015                   | 16191                 |                   | 1.01                 | 8.0E-05                                       | M83575.1                 | NT                            | Pisum sativum mRNA for beta-1,3 glucanase (gns2 gene)   |
| 4604                   | 17741                 | 30719             | 0.78                 | 8.0E-05                                       | AW044805.1               | EST_HUMAN                     | Human platelet-derived growth factor A chain (PDGFA) gene, exons only   |
| 8948                   | 22627                 | 36568             | 0.51                 | 8.0E-05                                       | Y11668.1                 | NT                            | wy73a04.x1 Soares_NSIF_F8_9W_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:2554638 3'  |
| 11419                  | 24480                 | 38146             | 2.58                 | 8.0E-05                                       | M89197.1                 | NT                            | Mus musculus gene for hexokinase II, exon 1 (and joined CDS)  |
|                        |                       |                   |                      |   |                          |                               | Human hemoglobin and hemoglobin-related protein (HP and HPR) genes, complete cds  |
| 13169                  | 26001                 |                   | 1.78                 | 8.0E-05                                       | AA276333.1               | EST_HUMAN                     | zs88h01.s1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:704593 3' similar to contains Alu  |
| 357                    | 13668                 | 26568             | 3.16                 | 7.0E-05                                       | AW847445.1               | EST_HUMAN                     | repetitive element/contains element MSR1 repetitive element   |
| 357                    | 13668                 | 26567             | 3.16                 | 7.0E-05                                       | AW847445.1               | EST_HUMAN                     | RC3-CT0208-220999-011-E04 CT0208 Homo sapiens cDNA  |
|                        |                       |                   |                      |   |                          |                               | RC3-CT0208-220999-011-E04 CT0208 Homo sapiens cDNA  |

Page 200 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 581                    | 13773                 | 26793             | 1.14                 | 7.0E-05                                       | L49076.1                 | EST_HUMAN                     | HUM072014F Human fovea cDNA Homo sapiens cDNA clone EST HFD072014   |
| 581                    | 13773                 | 26794             | 1.14                 | 7.0E-05                                       | L49075.1                 | EST_HUMAN                     | HUM072014F Human fovea cDNA Homo sapiens cDNA clone EST HFD072014   |
| 1080                   | 14246                 | 27303             | 1.07                 | 7.0E-05                                       | Q22949                   | SWISSPROT                     | PROBABLE GLYCEROL-3-PHOSPHATE ACYLTRANSFERASE, MITOCHONDRIAL PRECURSOR (GPAT)   |
| 2783                   | 15659                 | 29008             | 6.16                 | 7.0E-05                                       | AL163278.2               | NT                            | Homo sapiens chromosome 21 segment HS21C078   |
| 3227                   | 16401                 | 29413             | 3.9                  | 7.0E-05                                       | AB009080.1               | NT                            | Dictyostelium discoideum gene for TRFA, complete cds  |
| 4168                   | 17318                 |                   | 0.85                 | 7.0E-05                                       | AF111167.2               | NT                            | Homo sapiens jun dimerization protein gene, partial cds; cfos gene, complete cds; and unknown gene  |
| 4492                   | 17632                 | 30614             | 1.88                 | 7.0E-05                                       | AL163201.2               | NT                            | Homo sapiens chromosome 21 segment HS21C001   |
| 6041                   | 18169                 | 31144             | 0.88                 | 7.0E-05                                       | 8845300                  | NT                            | Rat cytomegalovirus Measiticht, complete genome   |
| 8420                   | 21501                 | 35033             | 1.24                 | 7.0E-05                                       | AA505582.1               | EST_HUMAN                     | nt83g01.s1 NCI_CGAP_Br2 Homo sapiens cDNA clone IMAGE:886086 3'   |
| 9753                   | 22691                 | 36261             | 3.6                  | 7.0E-05                                       | T07085.1                 | EST_HUMAN                     | EST04684 Fetal brain, Strategene (cat8363626) Homo sapiens cDNA clone HFBED80   |
| 11430                  | 24481                 |                   | 5.87                 | 7.0E-05                                       | 10633046                 | NT                            | Homo sapiens sarcoglycan, spliced (SGCE), mRNA  |
| 2083                   | 16223                 | 28344             | 1.59                 | 6.0E-05                                       | 4885170                  | NT                            | Homo sapiens chromosome X open reading frame 6 (CXORF6) mRNA  |
| 2083                   | 15223                 | 28345             | 1.59                 | 6.0E-05                                       | 4885170                  | NT                            | Homo sapiens chromosome X open reading frame 6 (CXORF6) mRNA  |
| 2655                   | 15778                 | 28892             | 1.66                 | 6.0E-05                                       | A1655241.1               | EST_HUMAN                     | w654h05.x1 NCI_CGAP_G08 Homo sapiens cDNA clone IMAGE:2309531 3' similar to gb:J03250 DNA TOPOISOMERASE I (HUMAN);                                      |
| 2875                   | 13880                 | 28912             | 2.54                 | 6.0E-05                                       | AF053630.1               | NT                            | Homo sapiens monocyte/neutrophil elastase inhibitor gene, complete cds  |
| 6034                   | 19217                 | 32538             | 3.26                 | 6.0E-05                                       | Q12860                   | SWISSPROT                     | CONTACTIN PRECURSOR (GLYCOPROTEIN GP135)  |
| 6034                   | 19217                 | 32538             | 3.26                 | 6.0E-05                                       | Q12860                   | SWISSPROT                     | CONTACTIN PRECURSOR (GLYCOPROTEIN GP135)  |
| 6533                   | 19697                 | 33070             | 1.5                  | 6.0E-05                                       | N72829.1                 | EST_HUMAN                     | yw50g11.1 Scores fetal liver spleen 1NLS Homo sapiens cDNA clone IMAGE:246212 5'  |
| 7073                   | 20126                 | 33542             | 0.74                 | 6.0E-05                                       | AA897880.1               | EST_HUMAN                     | q80a03.s1 Scores_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:1504586 3'  |
| 8276                   | 21358                 | 34876             | 1.03                 | 6.0E-05                                       | BE004410.1               | EST_HUMAN                     | RC4-BT0311-141189-011-h06 BT0311 Homo sapiens cDNA  |
| 8276                   | 21358                 | 34877             | 1.03                 | 6.0E-05                                       | BE004410.1               | EST_HUMAN                     | RC4-BT0311-141189-011-h06 BT0311 Homo sapiens cDNA  |
| 8638                   | 21718                 | 35255             | 0.62                 | 6.0E-05                                       | AA160482.1               | EST_HUMAN                     | 208c08.s1 Scores_pregnant_uterus_Nbt-HPU Homo sapiens cDNA clone IMAGE:481728 3' similar to contains element MER28 repetitive element;                  |
| 8843                   | 21723                 | 35280             | 2.62                 | 6.0E-05                                       | AW69829.1                | EST_HUMAN                     | PM4-NN0050-310360-001-F10 NN0050 Homo sapiens cDNA  |
| 8780                   | 21859                 | 35402             | 2.93                 | 6.0E-05                                       | Q180401                  | SWISSPROT                     | COMPLEMENT DECAY ACCELERATING FACTOR PRECURSOR  |
| 9452                   | 22568                 | 36134             | 1.59                 | 6.0E-05                                       | P08607                   | SWISSPROT                     | CAB-BINDING PROTEIN PRECURSOR (CABP)  |
| 9462                   | 22568                 | 36135             | 1.59                 | 6.0E-05                                       | P08607                   | SWISSPROT                     | CAB-BINDING PROTEIN PRECURSOR (CABP)  |
| 8721                   | 22788                 | 36357             | 1.77                 | 6.0E-05                                       | T04149.1                 | EST_HUMAN                     | y628c12.1 Stratagene lung (8937210) Homo sapiens cDNA clone IMAGE:119082 5'   |
| 9922                   | 22862                 | 36550             | 0.69                 | 6.0E-05                                       | AW627985.1               | EST_HUMAN                     | nt87a03.x1 Scores_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2974444 3'   |
| 10987                  | 24066                 | 37701             | 2.42                 | 6.0E-05                                       | R75638.1                 | EST_HUMAN                     | y159d08.s1 Scores placenta Nb2-IP Homo sapiens cDNA clone IMAGE:143635 3' similar to contains Alu repetitive element; contains LTR7 repetitive element; |

Page 201 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 11807                  | 24797                 | 38495             | 2.7                  | 6.0E-05                                       | AA044015.1               | EST_HUMAN                     | 268902.1 Soares_pregnant_uterus_NHMPU Homo sapiens cDNA clone IMAGE:487035 5'   |
| 12699                  | 25989                 | 31773             | 9.37                 | 6.0E-05                                       | AW890110.1               | EST_HUMAN                     | MRO-NT0038-250400-001-409 NT0038 Homo sapiens cDNA  |
| 1435                   | 14598                 | 27661             | 20.87                | 5.0E-05                                       | AW392088.1               | EST_HUMAN                     | QV4-ST0234-241198-040-h11 ST0234 Homo sapiens cDNA  |
| 1912                   | 15065                 |                   | 1.07                 | 5.0E-05                                       | 892389.1                 | NT                            | Homo sapiens 22kDa peroxisomal membrane protein-like (LOC55885), mRNA   |
| 2824                   | 16102                 | 28116             | 0.84                 | 5.0E-05                                       | AJ251058.1               | NT                            | Homo sapiens MEP1A gene, promoter region and exon 1   |
| 4088                   | 17243                 | 30250             | 3.19                 | 5.0E-05                                       | AJ251884.1               | NT                            | Homo sapiens partial SLC22A3 gene for extraneuronal monoamine transporter (EMT), exon 1   |
| 5842                   | 18836                 | 31913             | 11.81                | 5.0E-05                                       | X98856.1                 | NT                            | Human MLC1emb gene for embryonic myosin alkaline light chain, 3'UTR   |
| 6115                   | 19295                 | 32630             | 3.58                 | 5.0E-05                                       | AV653544.1               | EST_HUMAN                     | AV653544 GLG Homo sapiens cDNA clone GLCDMA06 3'  |
| 6297                   | 19470                 | 32825             | 0.97                 | 5.0E-05                                       | AF260225.1               | NT                            | Homo sapiens TESTIN 2 and TESTIN 3 genes, complete cds, alternatively spliced   |
| 7486                   | 20560                 |                   | 1.4                  | 5.0E-05                                       | AB037984.1               | NT                            | Mus musculus gene for cathepsin, exon 1   |
| 12498                  | 25503                 |                   | 6.26                 | 5.0E-05                                       | P49183                   | SWISSPROT                     | RETINAL-BINDING PROTEIN (RALBP)   |
| 12759                  | 25503                 |                   | 6.9                  | 5.0E-05                                       | P49183                   | SWISSPROT                     | RETINAL-BINDING PROTEIN (RALBP)   |
| 2888                   | 13457                 |                   | 2.73                 | 4.0E-05                                       | P12821.1                 | NT                            | Human retin (REN) gene, 5' flanking region  |
| 4805                   | 17742                 | 30720             | 0.76                 | 4.0E-05                                       | P49183                   | SWISSPROT                     | RETINAL-BINDING PROTEIN (RALBP)   |
| 4805                   | 17742                 | 30721             | 0.76                 | 4.0E-05                                       | P49183                   | SWISSPROT                     | RETINAL-BINDING PROTEIN (RALBP)   |
| 4897                   | 18126                 |                   | 0.95                 | 4.0E-05                                       | AF164488.1               | NT                            | Cryptosporidium parvum isolate Zaire 15 kDa glycoprotein gp15 gene, partial cds   |
| 5131                   | 18266                 | 31222             | 0.73                 | 4.0E-05                                       | AF212313.1               | NT                            | Drosophila melanogaster senseless protein (sense) gene, complete cds  |
| 9723                   | 22788                 |                   | 6.75                 | 4.0E-05                                       | AF202635.1               | NT                            | Homo sapiens PP1200 mRNA, complete cds  |
| 10817                  | 23651                 | 37280             | 0.54                 | 4.0E-05                                       | P23780                   | SWISSPROT                     | BETA-GALACTOSIDASE PRECURSOR (LACTASE)(ACID BETA-GALACTOSIDASE)   |
| 11007                  | 24086                 | 37723             | 4.14                 | 4.0E-05                                       | AW627948.1               | EST_HUMAN                     | h38607.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2874980 3' similar to contains element MIR repetitive element;  |
| 12343                  | 25248                 | 32113             | 3.27                 | 4.0E-05                                       | AL163252.2               | NT                            | Homo sapiens chromosome 21 segment HS21C082   |
| 12426                  | 25302                 |                   | 1.47                 | 4.0E-05                                       | AW117580.1               | EST_HUMAN                     | x833409.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2805192 3'   |
| 19189                  | 25773                 |                   | 1.16                 | 4.0E-05                                       | AA417758.1               | EST_HUMAN                     | z001611.s1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:746262 3'  |
| 688                    | 13881                 | 28914             | 0.8                  | 3.0E-05                                       | AJ248061.1               | EST_HUMAN                     | q184c10.x1 Soares_fetal_liver_spleen_INFLS_S1 Homo sapiens cDNA clone IMAGE:1849458 3' similar to contains Alu repetitive element; contains element KER repetitive element; |
| 1084                   | 14250                 | 27307             | 1.16                 | 3.0E-05                                       | AW273851.1               | EST_HUMAN                     | x24403.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2814100 3'  |
| 1550                   | 14702                 | 27781             | 3.73                 | 3.0E-05                                       | BE169211.1               | EST_HUMAN                     | PM1-HT0521-120200-001-e10 HT0521 Homo sapiens cDNA  |
| 1550                   | 14702                 | 27782             | 3.73                 | 3.0E-05                                       | BE169211.1               | EST_HUMAN                     | PM1-HT0521-120200-001-e10 HT0521 Homo sapiens cDNA  |
| 3365                   | 16637                 |                   | 0.7                  | 3.0E-05                                       | AJ288919.1               | EST_HUMAN                     | q871g11.x1 Soares_NHMPU_S1 Homo sapiens cDNA clone IMAGE:1879748 3' similar to TR:008632  |
| 4501                   | 17641                 | 30625             | 7.81                 | 3.0E-05                                       | BE169211.1               | EST_HUMAN                     | 008632 GLYCINE TYROSINE-RICH HAIR PROTEIN. ;  |
| 4501                   | 17641                 | 30628             | 7.81                 | 3.0E-05                                       | BE169211.1               | EST_HUMAN                     | PM1-HT0521-120200-001-e10 HT0521 Homo sapiens cDNA  |
| 4588                   | 17725                 | 30707             | 1.11                 | 3.0E-05                                       | AA368678.1               | EST_HUMAN                     | EST79886 Placenta 1 Homo sapiens cDNA similar to similar to p53-associated protein  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 4588                   | 17725                 | 30708             | 1.11                 | 3.0E-05                                       | AA368678.1               | EST_HUMAN                     | EST789886 Placenta   Homo sapiens cDNA similar to p53-associated protein  |
| 4741                   | 17876                 | 30859             | 0.93                 | 3.0E-05                                       | AF149773.1               | NT                            | Homo sapiens NOD1 protein (NOD1) gene, exons 1, 2, and 3  |
| 4889                   | 13881                 | 26014             | 0.7                  | 3.0E-05                                       | AJ248061.1               | EST_HUMAN                     | qf04c10.x1 Soares fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:1849458 3' similar to contains Alu repetitive element; contains element KER repetitive element; |
| 5675                   | 18669                 | 32155             | 1.72                 | 3.0E-05                                       | 11072102                 | NT                            | Mus musculus myosin light chain 2, precursor lymphocyte-specific (Myo2p), mRNA  |
| 5897                   | 20047                 | 33456             | 1.21                 | 3.0E-05                                       | AJ225782.1               | NT                            | Homo sapiens SYBL1 gene, exons 6-8  |
| 6897                   | 20047                 | 33457             | 1.21                 | 3.0E-05                                       | AJ225782.1               | NT                            | Homo sapiens SYBL1 gene, exons 6-8  |
| 8082                   | 21164                 | 34681             | 2.26                 | 3.0E-05                                       | BE733167.1               | EST_HUMAN                     | 601587451F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3842282 5'   |
| 8647                   | 21628                 | 35166             | 1.55                 | 3.0E-05                                       | AA284049.1               | EST_HUMAN                     | z560D05.s1 Stragene echino brain S11 Homo sapiens cDNA clone IMAGE:701841 3'  |
| 9084                   | 22173                 | 35718             | 1.53                 | 3.0E-05                                       | AW770982.1               | EST_HUMAN                     | H94e08.x1 NCI CGAP Lu24 Homo sapiens cDNA clone IMAGE:3008638 3'  |
| 9098                   | 22177                 | 35721             | 1.63                 | 3.0E-05                                       | 6912431                  | NT                            | Homo sapiens interleukin-1 receptor antagonist homolog 1 (IL1HY1), mRNA   |
| 9102                   | 22181                 | 35726             | 0.59                 | 3.0E-05                                       | P43361                   | SWISSPROT                     | MELANOMA-ASSOCIATED ANTIGEN 8 (MAGE-8 ANTIGEN)  |
| 9331                   | 22407                 | 36154             | 0.51                 | 3.0E-05                                       | X03273.1                 | NT                            | Human Alu-family cluster 5' of alpha(1)-acid glycoprotein gene  |
| 9521                   | 22586                 | 36154             | 1.4                  | 3.0E-05                                       | AA372562.1               | EST_HUMAN                     | EST84475 Colon adenocarcinoma IV Homo sapiens cDNA 5' end   |
| 9863                   | 22803                 | 37403             | 3.62                 | 3.0E-05                                       | AJ769331.1               | EST_HUMAN                     | wg36f09.x1 Soares NSF_F8_QW_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:2367209 3'   |
| 10755                  | 23788                 | 37403             | 0.92                 | 3.0E-05                                       | Q62918                   | SWISSPROT                     | PROTEIN KINASE C-BINDING PROTEIN NELL2 PRECURSOR (NELL-LIKE PROTEIN 2)  |
| 10765                  | 23788                 | 37404             | 0.92                 | 3.0E-05                                       | Q62918                   | SWISSPROT                     | PROTEIN KINASE C-BINDING PROTEIN NELL2 PRECURSOR (NELL-LIKE PROTEIN 2)  |
| 12353                  | 25255                 |                   | 1.67                 | 3.0E-05                                       | L77570.1                 | NT                            | Homo sapiens DiGeorge syndrome critical region, centromeric end   |
| 12551                  | 25374                 |                   | 1.37                 | 3.0E-05                                       | AJ271735.1               | NT                            | Homo sapiens Xq pseudautosomal region; segment 1/2  |
| 12813                  | 26106                 |                   | 1.29                 | 3.0E-05                                       | AW518689.1               | EST_HUMAN                     | xs89d06.x1 NCI CGAP_U12 Homo sapiens cDNA clone IMAGE:2776811 3'  |
| 2400                   | 15531                 | 28658             | 1.49                 | 2.0E-05                                       | AJ286021.1               | EST_HUMAN                     | qf06a11.x1 Soares_NFL_T_QBC_S1 Homo sapiens cDNA clone IMAGE:1855052 3' similar to contains   |
| 2650                   | 15773                 | 28886             | 14.63                | 2.0E-05                                       | M13782.1                 | NT                            | MER3 b2 MER3 repetitive element;  |
| 2777                   | 16883                 |                   | 6.99                 | 2.0E-05                                       | AA160582.1               | EST_HUMAN                     | Human adenocarcinoma deaminase (ADA) gene, complete cds   |
| 3207                   | 16382                 | 29393             | 1.29                 | 2.0E-05                                       | BE066036.1               | EST_HUMAN                     | zq48a12.r1 Stragene hNT neuron (#837233) Homo sapiens cDNA clone IMAGE:532734 5' similar to contains Alu repetitive element; contains element L1 repetitive element;        |
| 3428                   | 16597                 | 29613             | 1.04                 | 2.0E-05                                       | AF184614.1               | NT                            | RC3-BT0319-120200-014-H08 BT0319 Homo sapiens cDNA  |
| 3455                   | 16622                 | 29643             | 1.12                 | 2.0E-05                                       | X95465.1                 | NT                            | Homo sapiens p47-phox (NCF1) gene, complete cds   |
| 3583                   | 16748                 |                   | 0.87                 | 2.0E-05                                       | AL039107.1               | NT                            | H. sapiens DNA for endogenous retroviral like element   |
| 3609                   | 17068                 |                   | 0.81                 | 2.0E-05                                       | AL039107.1               | NT                            | S. cerevisiae 12.8 Kbp fragment of the left arm of chromosome XV  |
| 5003                   | 18132                 | 31108             | 0.6                  | 2.0E-05                                       | AJ131018.1               | EST_HUMAN                     | DKFZp5681064.r1 568 (synonym: Ifhd2) Homo sapiens cDNA clone DKFZp5681064 5'  |
| 5878                   | 19088                 | 32376             | 1.84                 | 2.0E-05                                       | AJ011712.1               | NT                            | Homo sapiens SCL gene locus   |
| 6039                   | 19222                 |                   | 0.87                 | 2.0E-05                                       | AF023308.1               | NT                            | Homo sapiens TNNT1 gene, exons 1-11 (and joined CDS)  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens chromosome 9 duplication of the T cell receptor beta locus and tyrosinase gene families  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 6092                   | 18273                 | 32601             | 0.91                 | 2.0E-05                                       | Q13183                   | SWISSPROT                     | RENAL SODIUM/DICARBOXYLATE COTRANSPORTER (NA(+)/DICARBOXYLATE COTRANSPORTER)   |
| 6092                   | 18273                 | 32602             | 0.91                 | 2.0E-05                                       | Q13183                   | SWISSPROT                     | RENAL SODIUM/DICARBOXYLATE COTRANSPORTER (NA(+)/DICARBOXYLATE COTRANSPORTER)   |
| 6286                   | 19459                 | 32811             | 0.79                 | 2.0E-05                                       | A1148272.1               | EST_HUMAN                     | gp72a02.x1 Soares_placenta_8to9weeks_2Nbl-IP8to9W Homo sapiens cDNA clone IMAGE:1715114 3'   |
| 6760                   | 18916                 | 33311             | 2.11                 | 2.0E-05                                       | AA714330.1               | EST_HUMAN                     | similar to contains L1.13 L1 repetitive element;   |
| 7042                   | 20095                 | 33511             | 1.88                 | 2.0E-05                                       | Y08928.1                 | NT                            | nm08412.s1 NCL_CGAP_SS1 Homo sapiens cDNA clone IMAGE:1238518 3'   |
| 7054                   | 20107                 | 33523             | 1                    | 2.0E-05                                       | A1482380.1               | EST_HUMAN                     | P.falciparum mRNA for AARP1 protein, partial   |
| 7062                   | 20115                 |                   | 7.24                 | 2.0E-05                                       | A1691025.1               | EST_HUMAN                     | Q02711 PRO-POL-DUTPASE POLYPROTEIN;  |
| 7303                   | 20385                 | 33844             | 2                    | 2.0E-05                                       | AF224282.1               | NT                            | w135h07.x1 Soares_Diethylstilbestrol_NHCD Homo sapiens cDNA clone IMAGE:2522077 3'   |
| 7303                   | 20385                 | 33845             | 2                    | 2.0E-05                                       | AF224282.1               | NT                            | Heterodontus francisci HoxA10 (HoxA10), HoxA9 (HoxA9), HoxA7 (HoxA7), HoxA6 (HoxA6), HoxA5 (HoxA5), HoxA4 (HoxA4), HoxA3 (HoxA3), HoxA2 (HoxA2), and HoxA1 (HoxA1) genes, complete cds |
| 7624                   | 20597                 |                   | 0.77                 | 2.0E-05                                       | AF128847.1               | NT                            | Heterodontus francisci HoxA10 (HoxA10), HoxA9 (HoxA9), HoxA7 (HoxA7), HoxA6 (HoxA6), HoxA5 (HoxA5), HoxA4 (HoxA4), HoxA3 (HoxA3), HoxA2 (HoxA2), and HoxA1 (HoxA1) genes, complete cds |
| 8089                   | 21151                 | 34671             | 1.58                 | 2.0E-05                                       | A1381040.1               | EST_HUMAN                     | Homo sapiens indolethylamine N-methyltransferase (INMT) mRNA, INMT-2 allele, complete cds  |
| 9467                   | 22524                 | 36087             | 0.59                 | 2.0E-05                                       | P49457                   | SWISSPROT                     | ig20f05.x1 NCL_CGAP_GLI1 Homo sapiens cDNA clone IMAGE:2106369 3'  |
| 9467                   | 22524                 | 36088             | 0.55                 | 2.0E-05                                       | P49457                   | SWISSPROT                     | COMPLEMENT DECAY-ACCELERATING FACTOR (CD55)  |
| 10127                  | 23105                 | 36784             | 0.6                  | 2.0E-05                                       | AL163207.2               | NT                            | COMPLEMENT DECAY-ACCELERATING FACTOR (CD55)  |
| 10339                  | 23374                 | 36984             | 0.94                 | 2.0E-05                                       | BF055639.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C007  |
| 10817                  | 23850                 | 37472             | 3.53                 | 2.0E-05                                       | N41751.1                 | EST_HUMAN                     | w175g08.y1 NCL_CGAP_Etn20 Homo sapiens cDNA clone IMAGE:3340576 5'   |
| 10817                  | 23850                 | 37473             | 3.53                 | 2.0E-05                                       | N41751.1                 | EST_HUMAN                     | w181a06.r1 Soares_placenta_8to9weeks_2Nbl-IP8to9W Homo sapiens cDNA clone IMAGE:258570 5'  |
| 10881                  | 20115                 |                   | 2.66                 | 2.0E-05                                       | A1691025.1               | EST_HUMAN                     | w181a06.r1 Soares_placenta_8to9weeks_2Nbl-IP8to9W Homo sapiens cDNA clone IMAGE:258570 5'  |
| 11738                  | 23924                 | 37549             | 1.55                 | 2.0E-05                                       | BE176801.1               | EST_HUMAN                     | w135h07.x1 Soares_Diethylstilbestrol_NHCD Homo sapiens cDNA clone IMAGE:2522077 3'   |
| 11681                  | 24986                 | 38688             | 5.74                 | 2.0E-05                                       | A1912713.1               | EST_HUMAN                     | RC5-HT0582-280300-012-E12 HT0582 Homo sapiens cDNA   |
| 12477                  | 25921                 |                   | 3.7                  | 2.0E-05                                       | BE348229.1               | EST_HUMAN                     | w12f05.x1 NCL_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:2340921 3'   |
| 12592                  | 28104                 |                   | 8.13                 | 2.0E-05                                       | AW074604.1               | EST_HUMAN                     | hw21a03.x1 NCL_CGAP_Kd11 Homo sapiens cDNA clone IMAGE:3183532 3' similar to TR-Q12832   |
|                        |                       |                   |                      |   |                          |                               | Q12832 GLYCOPHORIN HEP2;   |
|                        |                       |                   |                      |   |                          |                               | w181a03.x1 NCL_CGAP_Cor17 Homo sapiens cDNA clone IMAGE:2573832 3' similar to contains L1.13 L1 repetitive element;  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 12650                  | 25905                 |                   | 3.24                 | 2.0E-05                                       | AF276948.1               | NT                            | Homo sapiens ABCA1 (ABCA1) gene, complete cds   |
| 12625                  | 25551                 | 32014             | 2.01                 | 2.0E-05                                       | AU131513.1               | EST_HUMAN                     | AU131513 NT2P3 Homo sapiens cDNA clone NT2P3002707 5'   |
| 13208                  | 25787                 |                   | 1.64                 | 2.0E-05                                       | AL200970.1               | EST_HUMAN                     | q88g11.x1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:1765236 3'  |
| 2769                   | 16071                 | 26883             | 1.86                 | 1.0E-05                                       | AL163282.2               | NT                            | Homo sapiens chromosome 21 segment HS21C082   |
| 3740                   | 16801                 | 26905             | 1.71                 | 1.0E-05                                       | AF088273.1               | NT                            | Drosophila melanogaster strain Lando 120 Suppressor of Hairless (Su(H)) gene, partial cds                       |
| 3915                   | 17074                 |                   | 0.97                 | 1.0E-05                                       | AF223391.1               | NT                            | Homo sapiens calcium channel alpha1E subunit (CACNA1E) gene, exons 7-49, and partial cds, alternatively spliced |
| 4074                   | 17230                 | 30236             | 11.86                | 1.0E-05                                       | P81274                   | SWISSPROT                     | MOSAIC PROTEIN LGN  |
| 4288                   | 17433                 | 30420             | 1.45                 | 1.0E-05                                       | AL163203.2               | NT                            | Homo sapiens chromosome 21 segment HS21C003   |
| 4392                   | 17636                 | 30514             | 2.14                 | 1.0E-05                                       | AA431119.1               | EST_HUMAN                     | z469g04.t1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:781494 5'  |
| 4675                   | 18104                 | 31080             | 2.24                 | 1.0E-05                                       | AW419134.1               | EST_HUMAN                     | z469g11.x1 NCL CGAP_Lu34.1 Homo sapiens cDNA clone IMAGE:2856548 3'   |
| 5078                   | 18207                 | 31179             | 0.86                 | 1.0E-05                                       | AL163246.2               | NT                            | Homo sapiens chromosome 21 segment HS21C046   |
| 5084                   | 18212                 | 31185             | 0.84                 | 1.0E-05                                       | Z18943.1                 | NT                            | H. sapiens repeat region  |
| 6881                   | 20043                 | 33451             | 1.13                 | 1.0E-05                                       | AJ246003.1               | NT                            | Homo sapiens Spast gene for spastin protein   |
| 7230                   | 20136                 | 33553             | 4.24                 | 1.0E-05                                       | AA841848.1               | EST_HUMAN                     | hs19g02.s1 NCL CGAP_GCB1 Homo sapiens cDNA clone IMAGE:1184114 3' similar to contains L1.11 L1                  |
| 7232                   | 20316                 | 33769             | 5.19                 | 1.0E-05                                       | 4505944                  | NT                            | L1 repetitive element;  |
| 7837                   | 20892                 | 34394             | 0.73                 | 1.0E-05                                       | BF222846.1               | EST_HUMAN                     | Homo sapiens phospholipase A2, group X (PLA2G10) mRNA, and translated products                                  |
| 7956                   | 21005                 |                   | 2.03                 | 1.0E-05                                       | P19474                   | SWISSPROT                     | Homo sapiens phospholipase A2, group X (PLA2G10) mRNA, and translated products                                  |
| 8116                   | 22195                 |                   | 2.39                 | 1.0E-05                                       | AL163272.2               | NT                            | 7p57d01.x1 NCL CGAP_P128 Homo sapiens cDNA clone IMAGE:3846945 3' similar to contains MER10 b3                  |
| 9260                   | 22337                 | 35887             | 2.59                 | 1.0E-05                                       | AA452578.1               | EST_HUMAN                     | MER10 repetitive element;   |
| 9487                   | 22544                 | 36107             | 12.29                | 1.0E-05                                       | AA236110.1               | EST_HUMAN                     | 52 KD RO PROTEIN (SJOGEREN SYNDROME TYPE A ANTIGEN (SS-A)) (RO(SS-A))   |
| 9568                   | 22708                 | 36275             | 0.81                 | 1.0E-05                                       | AV732190.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C027   |
| 10043                  | 23081                 | 36882             | 0.79                 | 1.0E-05                                       | AW510602.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C027   |
| 10043                  | 23081                 | 36883             | 0.79                 | 1.0E-05                                       | AW510602.1               | EST_HUMAN                     | z36h12.s1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:788519 3' similar to                                  |
| 10120                  | 23168                 | 36756             | 1.18                 | 1.0E-05                                       | AW291521.1               | EST_HUMAN                     | gbL02932 PEROXISOME PROLIFERATOR ACTIVATED RECEPTOR ALPHA (HUMAN);  |
| 10120                  | 23168                 | 36757             | 1.18                 | 1.0E-05                                       | AW291521.1               | EST_HUMAN                     | z505e11.t1 NCL CGAP_GCB1 Homo sapiens cDNA clone IMAGE:684332 5' similar to contains Alu                        |
| 10387                  | 23422                 |                   | 2.04                 | 1.0E-05                                       | AW465955.1               | EST_HUMAN                     | repetitive element; contains element TAR1 repetitive element;   |
|                        |                       |                   |                      |   |                          |                               | AV732190 HTF Homo sapiens cDNA clone IMAGE:2912043 3' similar to contains                                       |
|                        |                       |                   |                      |   |                          |                               | OFR.t1 OFR repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | hd41b02.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2912043 3' similar to contains                     |
|                        |                       |                   |                      |   |                          |                               | OFR.t1 OFR repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | UIH-B12-egk-a-08-0-UJ.s1 NCL CGAP_Sub4 Homo sapiens cDNA clone IMAGE:2724398 3'                                 |
|                        |                       |                   |                      |   |                          |                               | UIH-B12-egk-a-08-0-UJ.s1 NCL CGAP_Sub4 Homo sapiens cDNA clone IMAGE:2724398 3'                                 |
|                        |                       |                   |                      |   |                          |                               | ha07c10.x1 NCL CGAP_K1d12 Homo sapiens cDNA clone IMAGE:2873010 3' similar to contains L1.12 L1                 |
|                        |                       |                   |                      |   |                          |                               | repetitive element;   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 11159                  | 24230                 | 37860             | 2.22                 | 1.0E-05                                       | U91328.1                 | NT                            | Human hereditary haemochromatosis region, histone 2A-like protein gene, hereditary haemochromatosis (HLA-H) gene, RoRet gene, and sodium phosphate transporter (NPT3) gene, complete cds |
| 11159                  | 24230                 | 37861             | 2.22                 | 1.0E-05                                       | U91328.1                 | NT                            | Human hereditary haemochromatosis region, histone 2A-like protein gene, hereditary haemochromatosis (HLA-H) gene, RoRet gene, and sodium phosphate transporter (NPT3) gene, complete cds |
| 13023                  | 28036                 | 31683             | 1.4                  | 1.0E-05                                       | AL163303.2               | NT                            | Human sapiens chromosome 21 segment HS21G103   |
| 2737                   | 15854                 | 28988             | 5.83                 | 9.0E-06                                       | AI583811.1               | EST_HUMAN                     | h73a08.x1 NC1 CGAP_HSC3 Homo sapiens cDNA clone IMAGE:2246386 3'   |
| 3165                   | 18340                 | 28348             | 6.11                 | 9.0E-06                                       | AL218083.1               | EST_HUMAN                     | qg11b08.x1 Soares_placenta_83a0weeks_2NblHP6tb9W Homo sapiens cDNA clone IMAGE:1759191 3'  |
| 3698                   | 16859                 |                   | 2.56                 | 9.0E-06                                       | M61755.1                 | NT                            | Human alanine:glyoxylate aminotransferase (AGXT) gene, exons 1 and 2   |
| 6025                   | 19208                 | 32528             | 2.48                 | 9.0E-06                                       | L23416.1                 | NT                            | Homo sapiens differentiation antigen CD20 gene, exons 5, 6   |
| 7003                   | 20139                 | 33557             | 0.82                 | 9.0E-06                                       | BE065042.1               | EST_HUMAN                     | RC1-BT0313-110500-017-a07 BT0313 Homo sapiens cDNA   |
| 7698                   | 20668                 | 34144             | 2.82                 | 9.0E-06                                       | P08547                   | SWISSPROT                     | LINE-1 REVERSE TRANSCRIPTASE HOMOLOG   |
| 7963                   | 21003                 | 34515             | 12.35                | 9.0E-06                                       | AK034370.1               | EST_HUMAN                     | cc20g01.x1 Soares_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:1658912 3' similar to contains Alu repetitive element  |
| 8669                   | 21739                 | 36280             | 1.17                 | 9.0E-06                                       | AL163208.2               | NT                            | Homo sapiens chromosome 21 segment HS21G009  |
| 8183                   | 22261                 | 35803             | 3.3                  | 9.0E-06                                       | Q63789                   | SWISSPROT                     | SUSHI REPEAT-CONTAINING PROTEIN SRPX PRECURSOR (DRS PROTEIN) (DOWN-REGULATED BY V-SRC)   |
| 8183                   | 22261                 | 35804             | 3.3                  | 9.0E-06                                       | Q63789                   | SWISSPROT                     | SUSHI REPEAT-CONTAINING PROTEIN SRPX PRECURSOR (DRS PROTEIN) (DOWN-REGULATED BY V-SRC)   |
| 9423                   | 22497                 | 36063             | 4.43                 | 9.0E-06                                       | U35114.1                 | NT                            | Human apolipoprotein E (APOE) gene, hepatic control region HCR-2   |
| 11180                  | 24249                 | 37883             | 3.61                 | 9.0E-06                                       | Q10364                   | SWISSPROT                     | PUTATIVE SERINE/THREONINE-PROTEIN KINASE C22E12.14C  |
| 2598                   | 16095                 | 28839             | 2.01                 | 8.0E-06                                       | AW362539.1               | EST_HUMAN                     | RC3-CT0283-201189-011-111 CT0283 Homo sapiens cDNA   |
| 6728                   | 19884                 | 33278             | 2.75                 | 8.0E-06                                       | AA284847.1               | EST_HUMAN                     | z122d06.s1 Soares ovary tumor NblHOT Homo sapiens cDNA clone IMAGE:713865 3' similar to contains MERB.11 MERB repetitive element   |
| 10751                  | 23784                 | 37397             | 0.93                 | 8.0E-06                                       | P34083                   | SWISSPROT                     | FASCICLIN II, PHOSPHATIDYLINOSITOL-LINKED ISOFORM PRECURSOR (FAS II)   |
| 10751                  | 23784                 | 37398             | 0.93                 | 8.0E-06                                       | P34083                   | SWISSPROT                     | FASCICLIN II, PHOSPHATIDYLINOSITOL-LINKED ISOFORM PRECURSOR (FAS II)   |
| 1002                   | 14173                 |                   | 1.73                 | 7.0E-06                                       | AA669729.1               | EST_HUMAN                     | ab30f10.s1 Striatogene lung (h837210) Homo sapiens cDNA clone IMAGE:854251 3' similar to contains MER20 H1 MER20 repetitive element  |
| 1470                   | 14624                 | 27708             | 3.12                 | 7.0E-06                                       | 7682177                  | NT                            | Homo sapiens KIAA0555 gene product (KIAA0555), mRNA  |
| 2836                   | 16113                 |                   | 10.59                | 7.0E-06                                       | AI368282.1               | EST_HUMAN                     | qwt6g09.x1 NC1 CGAP_U33 Homo sapiens cDNA clone IMAGE:1891286 3' similar to contains Alu repetitive element  |
| 3654                   | 16817                 |                   | 0.85                 | 7.0E-06                                       | AA385542.1               | EST_HUMAN                     | EST189205 Thyroid Homo sapiens cDNA 5' end similar to EST1 containing L1 repeat  |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit<br>Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|-----------------------------|-------------------------------|---|
| 5819                   | 19003                 |                   | 5.49                 | 7.0E-08                                       | AW883141.1                  | EST_HUMAN                     | QV2-OT0062-250400-173-h01 OT0062 Homo sapiens cDNA  |
| 5825                   | 19112                 | 32424             | 0.93                 | 7.0E-08                                       | N88845.1                    | EST_HUMAN                     | y65507.f1 Soares_multiple_sclerosis_2Nb-HMSP Homo sapiens cDNA clone IMAGE:278412 5'  |
| 8889                   | 22088                 | 35508             | 0.83                 | 7.0E-08                                       | 11420708                    | NT                            | Homo sapiens DNA segment, numerous copies, expressed probes (Q91 gene) (DXF88S1E), mRNA   |
| 10104                  | 23142                 |                   | 0.52                 | 7.0E-08                                       | Q81147                      | SWISSPROT                     | CERULOPLASMIN PRECURSOR (FERROXIDASE)   |
| 12202                  | 26131                 | 31547             | 1.88                 | 7.0E-08                                       | BF215872.1                  | EST_HUMAN                     | 601881522F1 NIH_MGC 57 Homo sapiens cDNA clone IMAGE:4083072 5'   |
| 2884                   | 16100                 | 29177             | 1.17                 | 6.0E-08                                       | BE069189.1                  | EST_HUMAN                     | QV3-BT0379-010300-105-d11 BT0379 Homo sapiens cDNA  |
| 3784                   | 16945                 | 29852             | 1.02                 | 6.0E-08                                       | BE069189.1                  | EST_HUMAN                     | QV3-BT0379-010300-105-d11 BT0379 Homo sapiens cDNA  |
| 4878                   | 16183                 | 29206             | 2.13                 | 6.0E-08                                       | Q01458                      | SWISSPROT                     | OVARIAN ABUNDANT MESSAGE PROTEIN (OAM PROTEIN)  |
| 4883                   | 18013                 | 30597             | 2.19                 | 6.0E-08                                       | A1040039.1                  | EST_HUMAN                     | cod8e02.x1 Soares_fetal_liver_spleen_infls_S1 Homo sapiens cDNA clone IMAGE:1655738 3' similar to contains MER.12 MER8 repetitive element:              |
| 5465                   | 18885                 | 31844             | 2.29                 | 6.0E-08                                       | AF167441.1                  | NT                            | Mus musculus E-cadherin binding protein E7 mRNA, complete cds   |
| 5525                   | 18722                 | 31739             | 1.16                 | 6.0E-08                                       | C02040                      | SWISSPROT                     | PROTEIN XE7   |
| 10080                  | 23086                 |                   | 1.96                 | 6.0E-08                                       | AW801912.1                  | EST_HUMAN                     | IL5-JM0070-110400-063-g02 UM0070 Homo sapiens cDNA  |
| 13142                  | 25742                 | 31948             | 2.39                 | 6.0E-08                                       | 11418157                    | NT                            | Homo sapiens calcium channel, voltage-dependent, alpha 1i subunit (CACNA1I), mRNA   |
| 6186                   | 19382                 | 32710             | 3.74                 | 5.0E-08                                       | AL163246.2                  | NT                            | Homo sapiens chromosome 21 segment HS21C048   |
| 6467                   | 19834                 | 32995             | 1.94                 | 5.0E-08                                       | U07591.1                    | NT                            | Human ABL gene, exon 1b and intron 1b, and putative M8804 Met protein (M8804 Met) gene, complete cds  |
| 7382                   | 20460                 | 33923             | 1.18                 | 5.0E-08                                       | AB007546.1                  | NT                            | Homo sapiens gene for LEO12, complete cds   |
| 8654                   | 21734                 | 35274             | 0.58                 | 5.0E-08                                       | AW856872.1                  | EST_HUMAN                     | RC1-CT0302-120200-018-H02 CT0302 Homo sapiens cDNA  |
| 8654                   | 21734                 | 35275             | 0.58                 | 5.0E-08                                       | AW856872.1                  | EST_HUMAN                     | RC1-CT0302-120200-013-H02 CT0302 Homo sapiens cDNA  |
| 10307                  | 23942                 | 36947             | 6.96                 | 5.0E-08                                       | AA313820.1                  | EST_HUMAN                     | EST185488 Colon carcinoma (HCC) cell line Homo sapiens cDNA 5' end  |
| 10731                  | 23764                 | 37372             | 0.61                 | 5.0E-08                                       | P06681                      | SWISSPROT                     | COMPLEMENT C2 PRECURSOR (C3/C5 CONVERTASE)  |
| 13011                  | 25686                 | 31957             | 5.49                 | 5.0E-08                                       | A1065045.1                  | EST_HUMAN                     | HA08777 Human fetal liver cDNA library Homo sapiens cDNA  |
| 664                    | 138150                | 26877             | 5.47                 | 4.0E-08                                       | R16267.1                    | EST_HUMAN                     | ya4603.f1 Soares Infant brain 1N1B Homo sapiens cDNA clone IMAGE:53254 5' similar to contains Alu repetitive element/contains L1 repetitive element:    |
| 869                    | 14045                 | 27110             | 4.73                 | 4.0E-08                                       | AW103354.1                  | EST_HUMAN                     | x063g12.x1 NCI_CGAP_Eso2 Homo sapiens cDNA clone IMAGE:2588574 3' similar to contains Alu repetitive element/contains element MER21 repetitive element: |
| 1365                   | 14519                 | 27658             | 3.18                 | 4.0E-08                                       | A1334928.1                  | EST_HUMAN                     | IB33e09.x1 NCI_CGAP_HSC2 Homo sapiens cDNA clone IMAGE:2056168 3'   |
| 1365                   | 14519                 | 27594             | 3.18                 | 4.0E-08                                       | A1334928.1                  | EST_HUMAN                     | IB33e09.x1 NCI_CGAP_HSC2 Homo sapiens cDNA clone IMAGE:2056168 3'   |
| 1503                   | 14656                 | 27738             | 1.45                 | 4.0E-08                                       | BF368612.1                  | EST_HUMAN                     | QV2-NT0046-200600-250-H07 NT0046 Homo sapiens cDNA  |
| 2339                   | 15470                 | 28805             | 1.96                 | 4.0E-08                                       | AW015401.1                  | EST_HUMAN                     | U1-H-B10-east-f-05-O-U1.at NCI_CGAP_Sub1 Homo sapiens cDNA clone IMAGE:2710425 3'   |
| 3131                   | 16307                 | 29321             | 0.89                 | 4.0E-08                                       | AF198349.1                  | NT                            | Gallus gallus Dact2 protein (Dact2) mRNA, complete cds  |
| 4000                   | 17157                 | 30163             | 0.99                 | 4.0E-08                                       | AW848295.1                  | EST_HUMAN                     | IL3-CT0214-150200-074-B03 CT0214 Homo sapiens cDNA  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 4820                   | 18053                 | 31041             | 1.88                 | 4.0E-08                                       | AB86939.1                | EST_HUMAN                     | w94c10.x1 NCL CGAP_Bm26 Homo sapiens cDNA clone IMAGE:2432562 3' similar to contains element  |
| 8696                   | 21776                 | 36308             | 0.68                 | 4.0E-08                                       | O15393                   | SWISSPROT                     | MER22 repetitive element;   |
| 8000                   | 22079                 | 35620             | 4.49                 | 4.0E-08                                       | AF009660.1               | NT                            | TRANSMEMBRANE PROTEIN, SERINE 2   |
| 8909                   | 22949                 | 36535             | 1.28                 | 4.0E-08                                       | AJ272663.1               | NT                            | Homo sapiens T cell receptor beta locus, TCRBV7S3A2 to TCRBV12S2 region   |
| 11735                  | 23821                 | 37546             | 3.99                 | 4.0E-08                                       | AB007955.1               | NT                            | Homo sapiens SPP2 gene for secreted phosphatase 24 precursor, exons 1-8   |
| 13149                  | 26162                 |                   | 1.33                 | 4.0E-06                                       | AW260734.1               | EST_HUMAN                     | Homo sapiens mRNA, chromosome 1 specific transcript KIAA0486  |
| 2232                   | 15366                 | 28494             | 1.31                 | 3.0E-06                                       | AA700562.1               | EST_HUMAN                     | xs53e01.x1 NCL CGAP_Kid11 Homo sapiens cDNA clone IMAGE:2773368 3'  |
| 2232                   | 15366                 | 28495             | 1.31                 | 3.0E-06                                       | AA700562.1               | EST_HUMAN                     | 234b08.s1 Soares_fetal_liver_spleen_INFLS_S1 Homo sapiens cDNA clone IMAGE:432683 3' similar to contains L1.11 L1 repetitive element; |
| 2340                   | 15471                 |                   | 1.48                 | 3.0E-06                                       | AF202635.1               | NT                            | 234b08.s1 Soares_fetal_liver_spleen_INFLS_S1 Homo sapiens cDNA clone IMAGE:432683 3' similar to contains L1.11 L1 repetitive element; |
| 2688                   | 16164                 | 28180             | 0.84                 | 3.0E-06                                       | AA868218.1               | EST_HUMAN                     | Homo sapiens PP1200 mRNA, complete cds  |
| 3339                   | 16512                 |                   | 2.67                 | 3.0E-06                                       | A1857779.1               | EST_HUMAN                     | ak48g11.s1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:1409252 3' similar to contains LTR1.53                                     |
| 3883                   | 17042                 | 30040             | 1.47                 | 3.0E-06                                       | BE047084.1               | EST_HUMAN                     | w122a05.x1 NCL CGAP_U1 Homo sapiens cDNA clone IMAGE:2428616 3' similar to TR:O60794 O60794   |
| 3883                   | 17042                 | 30041             | 1.47                 | 3.0E-06                                       | BE047084.1               | EST_HUMAN                     | LINE-1 LIKE PROTEIN; contains L1.12 L1 repetitive element;  |
| 4597                   | 17734                 | 30714             | 0.8                  | 3.0E-06                                       | T50266.1                 | EST_HUMAN                     | hg64d12.x1 NCL CGAP_HN13 Homo sapiens cDNA clone IMAGE:3124151 3'   |
| 4684                   | 17818                 | 30807             | 5.62                 | 3.0E-06                                       | X54916.1                 | NT                            | hg64d12.x1 NCL CGAP_HN13 Homo sapiens cDNA clone IMAGE:3124151 3'   |
| 6288                   | 19482                 | 32614             | 0.82                 | 3.0E-06                                       | AU159412.1               | EST_HUMAN                     | hg64d12.x1 NCL CGAP_HN13 Homo sapiens cDNA clone IMAGE:3124151 3'   |
| 7377                   | 20458                 |                   | 2.14                 | 3.0E-06                                       | P08548                   | SWISSPROT                     | ys78b10.r1 Stratiogene ovary (#837217) Homo sapiens cDNA clone IMAGE:77275 5' similar to contains L1 repetitive element               |
| 8274                   | 21366                 | 34874             | 0.81                 | 3.0E-06                                       | BE862864.1               | EST_HUMAN                     | Homo sapiens gene for alpha-1-microglobulin-bikunlin, exons 1-5 (encoding alpha-1-microglobulin, N-terminus.)                         |
| 8883                   | 21982                 | 35496             | 0.76                 | 3.0E-06                                       | P07743                   | SWISSPROT                     | AU159412 THYRO1 Homo sapiens cDNA clone THYRO1001602 3'   |
| 12866                  | 25435                 |                   | 12.07                | 3.0E-08                                       | AW385282.1               | EST_HUMAN                     | LINE-1 REVERSE TRANSCRIPTASE HOMOLOG  |
| 207                    | 19430                 |                   | 2.22                 | 2.0E-06                                       | P54368                   | SWISSPROT                     | 60136213F1 NIH_MGC_44 Homo sapiens cDNA clone IMAGE:3680314 5'  |
| 1599                   | 14752                 |                   | 6.39                 | 2.0E-06                                       | P21414                   | SWISSPROT                     | PAROTID SECRETORY PROTEIN PRECURSOR (PSP)   |
| 2451                   | 15579                 | 28707             | 2.58                 | 2.0E-06                                       | A672138.1                | EST_HUMAN                     | RCOL-T0001-261198-011-A03 LT0001 Homo sapiens cDNA  |
| 2537                   | 15682                 | 28785             | 1.69                 | 2.0E-06                                       | P04829                   | SWISSPROT                     | HOMEOBOX PROTEIN GOOSECOID  |
| 2632                   | 15755                 | 28870             | 1.81                 | 2.0E-06                                       | P06719                   | SWISSPROT                     | POL POLYPROTEIN [CONTAINS: PROTEASE; REVERSE TRANSCRIPTASE; ENDONUCLEASE]   |
| 3607                   | 16771                 | 29786             | 0.9                  | 2.0E-06                                       | AV657555.1               | EST_HUMAN                     | w804a03.x1 NCL CGAP_JGd11 Homo sapiens cDNA clone IMAGE:2297068 3' similar to contains MER30.b1                                       |
|                        |                       |                   |                      |   |                          | EST_HUMAN                     | MER30 repetitive element;   |
|                        |                       |                   |                      |   |                          | SWISSPROT                     | HISTIDINE-RICH GLYCOPROTEIN PRECURSOR   |
|                        |                       |                   |                      |   |                          | SWISSPROT                     | KNOB-ASSOCIATED HISTIDINE-RICH PROTEIN PRECURSOR (KAHRP)  |
|                        |                       |                   |                      |   |                          | EST_HUMAN                     | AV657555 GLC Homo sapiens cDNA clone GLC-FD806 3'   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 3868                   | 17018                 | 30017             | 1.54                 | 2.0E-08                                       | AA173518.1               | EST_HUMAN                     | zp0205.r1 Stratagene ovarian cancer (#837219) Homo sapiens cDNA clone IMAGE:585232 5'  |
| 3868                   | 17027                 | 30026             | 0.89                 | 2.0E-08                                       | AW450215.1               | EST_HUMAN                     | U1H-B13-alky-g-05-0-U1.s1 NCI_CGAP_Sub5 Homo sapiens cDNA clone IMAGE:2736176 3'   |
| 3876                   | 17035                 | 30033             | 1.7                  | 2.0E-08                                       | AB030898.1               | NT                            | Mus musculus gene for odorant receptor A10, complete cds   |
| 6214                   | 19389                 |                   | 0.92                 | 2.0E-06                                       | AA974932.1               | EST_HUMAN                     | on34h01.s1 NCI_CGAP_L15 Homo sapiens cDNA clone IMAGE:1558609 3' similar to contains Alu repetitive element;                         |
| 6246                   | 19420                 | 32766             | 0.82                 | 2.0E-08                                       | AI639448.1               | EST_HUMAN                     | ts51f05.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:200241 3' similar to TR:Q13537  |
| 6571                   | 19733                 | 33112             | 5.64                 | 2.0E-08                                       | AB18424.1                | EST_HUMAN                     | Q13537 MER37 TRANSPORTABLE ELEMENT, COMPLETE CONSENSUS SEQUENCE. ;   |
| 7635                   | 20704                 | 34183             | 0.83                 | 2.0E-08                                       | AA688423.1               | EST_HUMAN                     | W90604.x1 NCI_CGAP_Lym12 Homo sapiens cDNA clone IMAGE:2410063 3'  |
| 8102                   | 21184                 |                   | 1.02                 | 2.0E-08                                       | AW869223.1               | EST_HUMAN                     | nv59c06.s1 NCI_CGAP_GC81 Homo sapiens cDNA clone IMAGE:1234060 3' similar to contains L1.13 L1                                       |
| 8281                   | 21363                 | 34882             | 0.76                 | 2.0E-08                                       | T12238.1                 | EST_HUMAN                     | repetitive element ;   |
| 9036                   | 22115                 |                   | 1.05                 | 2.0E-08                                       | AA772497.1               | EST_HUMAN                     | NR3-SN0067-120400-002-f02 SN0067 Homo sapiens cDNA   |
| 9046                   | 22128                 | 35972             | 1.59                 | 2.0E-08                                       | H62051.1                 | EST_HUMAN                     | A447R Heart Homo sapiens cDNA clone A447   |
| 9417                   | 22491                 | 36056             | 0.9                  | 2.0E-08                                       | AF003528.1               | NT                            | zh27c11.s1 Soares_pituitary_gland_N31-IPG Homo sapiens cDNA clone IMAGE:413300 3' similar to   |
| 9417                   | 22491                 | 36057             | 0.9                  | 2.0E-08                                       | AF003528.1               | NT                            | TR:P70467 P70467 REVERSE TRANSCRIPTASE ;   |
| 9436                   | 22610                 |                   | 0.46                 | 2.0E-08                                       | AI473450.1               | EST_HUMAN                     | y487c04.r1 Soares ovary tumor NHOT Homo sapiens cDNA clone IMAGE:235974 5' similar to gbX74929                                       |
| 9802                   | 22942                 | 36627             | 0.86                 | 2.0E-08                                       | N30576.1                 | EST_HUMAN                     | KERATIN, TYPE II CYTOSKELETAL 8 (HUMAN);   |
| 10123                  | 23181                 |                   | 0.7                  | 2.0E-08                                       | AV748969.1               | EST_HUMAN                     | Homo sapiens glycocalyx 3 (GPC3) gene, partial cds and flanking repeat regions   |
| 12548                  | 26135                 | 31549             | 1.34                 | 2.0E-08                                       | P23249                   | SWISSPROT                     | Homo sapiens glycocalyx 3 (GPC3) gene, partial cds and flanking repeat regions   |
| 12711                  | 25473                 |                   | 5.94                 | 2.0E-08                                       | BE328232.1               | EST_HUMAN                     | t18g110.x1 NCI_CGAP_Gas4 Homo sapiens cDNA clone IMAGE:2141730 3'  |
| 34                     | 13272                 | 26276             | 1.16                 | 1.0E-08                                       | OT6082                   | SWISSPROT                     | yw66a03.s1 Soares_placenta_8to9weeks_2Nbl-IP8to9W Homo sapiens cDNA clone IMAGE:257212 3'  |
| 674                    | 13860                 | 26891             | 1.8                  | 1.0E-08                                       | AF084364.1               | NT                            | AV748969 NPC Homo sapiens cDNA clone NPCAXD05 5'   |
| 1482                   | 14635                 | 27719             | 1.8                  | 1.0E-08                                       | PO9125                   | SWISSPROT                     | PROTEIN MOV-10   |
| 1553                   | 14708                 | 27768             | 1                    | 1.0E-08                                       | AL163278.2               | NT                            | hs92f02.x1 NCI_CGAP_K1d13 Homo sapiens cDNA clone IMAGE:3144699 3' similar to contains L1.12 L1                                      |
| 1603                   | 14756                 | 27837             | 1.19                 | 1.0E-08                                       | AA034141.1               | EST_HUMAN                     | repetitive element ;   |
| 1603                   | 14758                 | 27838             | 1.19                 | 1.0E-08                                       | AA034141.1               | EST_HUMAN                     | ORGANIC CATION/CARNITINE TRANSPORTER 2 (SOLUTE CARRIER FAMILY 22, MEMBER 5) (HIGH-AFFINITY SODIUM-DEPENDENT CARNITINE COTRANSPORTER) |
|                        |                       |                   |                      |   |                          |                               | Mus musculus DNMM5E protein (D6Mm5e) mRNA, complete cds  |
|                        |                       |                   |                      |   |                          |                               | MEROZOITE SURFACE PROTEIN CMZ-8  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens chromosome 21 segment HS21C078  |
|                        |                       |                   |                      |   |                          |                               | z106a12.s1 Soares_fetal_liver_spleen_INFLS_S1 Homo sapiens cDNA clone IMAGE:429882 3' similar to                                     |
|                        |                       |                   |                      |   |                          |                               | contains Alu repetitive element;   |
|                        |                       |                   |                      |   |                          |                               | z106a12.s1 Soares_fetal_liver_spleen_INFLS_S1 Homo sapiens cDNA clone IMAGE:429882 3' similar to                                     |
|                        |                       |                   |                      |   |                          |                               | contains Alu repetitive element;   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 1815                   | 14768                 |                   | 0.99                 | 1.0E-06                                       | P27825                   | SWISSPROT                     | DNA-DIRECTED RNA POLYMERASE III LARGEST SUBUNIT  |
| 2050                   | 15191                 | 28303             | 4.49                 | 1.0E-06                                       | AF184614.1               | NT                            | Homo sapiens p47-phox (NCF1) gene, complete cds  |
| 2060                   | 15191                 | 28304             | 4.49                 | 1.0E-06                                       | AF184614.1               | NT                            | Homo sapiens p47-phox (NCF1) gene, complete cds  |
| 4489                   | 17929                 | 30610             | 15.97                | 1.0E-06                                       | U07661.1                 | NT                            | Human ABL gene, exon 1b and intron 1b, and putative M8504 Met protein (M8504 Met) gene, complete cds |
| 5215                   | 18336                 | 31308             | 1.18                 | 1.0E-06                                       | AL163285.2               | NT                            | Homo sapiens chromosome 21 segment HS21C085  |
| 5215                   | 18336                 | 31309             | 1.18                 | 1.0E-06                                       | AL163285.2               | NT                            | Homo sapiens chromosome 21 segment HS21C085  |
| 5342                   | 18455                 | 31422             | 0.72                 | 1.0E-06                                       | N65948.1                 | EST_HUMAN                     | zz27a08.s1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:263750 3'                   |
| 5405                   | 18607                 | 31679             | 5.14                 | 1.0E-06                                       | BF333015.1               | EST_HUMAN                     | MR1-BT0800-030700-002-c08 BT0800 Homo sapiens cDNA   |
| 5430                   | 18630                 | 31607             | 0.94                 | 1.0E-06                                       | BE3834518.1              | EST_HUMAN                     | MR3-FN0004-090600-001-e04 FN0004 Homo sapiens cDNA   |
| 5430                   | 18630                 | 31608             | 0.94                 | 1.0E-06                                       | BE3834518.1              | EST_HUMAN                     | MR3-FN0004-090600-001-e04 FN0004 Homo sapiens cDNA   |
| 5592                   | 18787                 | 31834             | 1.04                 | 1.0E-06                                       | C00013                   | SWISSPROT                     | 15 KDA SELENOPROTEIN PRECURSOR   |
| 6915                   | 19103                 |                   | 0.72                 | 1.0E-06                                       | BC063527.1               | EST_HUMAN                     | CMD-BT0281-031198-087-h04 BT0281 Homo sapiens cDNA   |
| 7012                   | 20148                 | 33569             | 7.53                 | 1.0E-06                                       | P02871                   | SWISSPROT                     | FIBRINOGEN ALPHA/ALPHA-E CHAIN PRECURSOR   |
| 7923                   | 26223                 |                   | 0.73                 | 1.0E-06                                       | BE185380.1               | EST_HUMAN                     | IL6-HT0730-020500-074-g01 HT0730 Homo sapiens cDNA   |
| 8190                   | 21272                 |                   | 0.98                 | 1.0E-06                                       | AA912623.1               | EST_HUMAN                     | cd28c08.s1 Soares NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:1524878 3'                              |
| 8468                   | 21549                 | 35079             | 1.12                 | 1.0E-06                                       | AB347010.1               | EST_HUMAN                     | qp54e02.x1 NCI_CGAP_C08 Homo sapiens cDNA clone IMAGE:1926842 3'                                     |
| 8685                   | 21765                 | 35297             | 1.31                 | 1.0E-06                                       | AL287878.1               | EST_HUMAN                     | qv23f06.x1 NCI_CGAP_Lym6 Homo sapiens cDNA clone IMAGE:1982435 3' similar to contains element        |
| 8904                   | 22770                 | 36341             | 0.91                 | 1.0E-06                                       | N74635.1                 | EST_HUMAN                     | MIR repetitive element;  |
| 9578                   | 22721                 | 36291             | 0.61                 | 1.0E-06                                       | Q38575                   | SWISSPROT                     | DYNEIN GAMMA CHAIN, FLAGELLAR OUTER ARM  |
| 9884                   | 22924                 | 36507             | 3.47                 | 1.0E-06                                       | U82698.1                 | NT                            | Homo sapiens shox gene, alternatively spliced products, complete cds                                 |
| 9884                   | 22924                 | 36508             | 3.47                 | 1.0E-06                                       | U82698.1                 | NT                            | Homo sapiens shox gene, alternatively spliced products, complete cds                                 |
| 9929                   | 22969                 | 36558             | 5.22                 | 1.0E-06                                       | AA132811.1               | EST_HUMAN                     | zo17e08.l1 Stragene colon (#937204) Homo sapiens cDNA clone IMAGE:587174 6'                          |
| 9991                   | 23030                 |                   | 3.55                 | 1.0E-06                                       | AA449257.1               | EST_HUMAN                     | zo04d11.s1 Soares total fetus Nb2HF8_9w Homo sapiens cDNA clone IMAGE:765493 3' similar to           |
| 10705                  | 23738                 |                   | 2.19                 | 1.0E-06                                       | AL163203.2               | NT                            | gtd28129 RIBONUCLEASE PANCREATIC PRECURSOR (HUMAN);  |
| 11949                  | 24935                 |                   | 3.1                  | 1.0E-06                                       | AW800941.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C003  |
| 12589                  | 25398                 | 32041             | 8.24                 | 1.0E-06                                       | L78810.1                 | NT                            | RC4-NT0054-120500-012-b03 NT0054 Homo sapiens cDNA   |
| 371                    | 13680                 | 26613             | 1.95                 | 9.0E-07                                       | AF003529.1               | NT                            | Homo sapiens ADP/ATP carrier protein (ANT-2) gene, complete cds                                      |
| 371                    | 13580                 | 26614             | 1.95                 | 9.0E-07                                       | AF003529.1               | NT                            | Homo sapiens glypican 3 (GPC3) gene, partial cds and flanking repeat regions                         |
| 8902                   | 21683                 |                   | 0.69                 | 9.0E-07                                       | AF003529.1               | NT                            | Homo sapiens glypican 3 (GPC3) gene, partial cds and flanking repeat regions                         |
| 11525                  | 24581                 | 38257             | 1.83                 | 9.0E-07                                       | AL163280.2               | NT                            | Homo sapiens chromosome 21 segment HS21C080  |
| 4893                   | 18023                 | 31008             | 4.23                 | 8.0E-07                                       | AL163281.2               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C081  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>- No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|----------------------------|-------------------------------|--|
| 4893                   | 18023                 | 31009             | 4.23                 | 8.0E-07                                       | A288598.1                  | EST_HUMAN                     | q182p07.x1 Soares_NhiHMP_u_S1 Homo sapiens cDNA clone IMAGE:1878878 3'   |
| 6007                   | 19182                 |                   | 8.17                 | 8.0E-07                                       | P21414                     | SWISSPROT                     | POL POLYPROTEIN [CONTAINS: PROTEASE; REVERSE TRANSCRIPTASE; ENDONUCLEASE]  |
| 8191                   | 21273                 |                   | 8.44                 | 8.0E-07                                       | AF135416.1                 | NT                            | Homo sapiens UDP-glucuronosyltransferase gene, complete cds  |
| 11021                  | 24007                 |                   | 5.84                 | 8.0E-07                                       | T07770.1                   | EST_HUMAN                     | EST050600 Fetal brain, Striatogene (cat#930206) Homo sapiens cDNA clone HFBEN89  |
| 12183                  | 25143                 |                   | 6.1                  | 8.0E-07                                       | AL163280.2                 | NT                            | Homo sapiens chromosome 21 segment HS21C080  |
| 1914                   | 15057                 | 28167             | 0.97                 | 7.0E-07                                       | AF167341.1                 | NT                            | Homo sapiens membrane interleukin 1 receptor accessory protein (IL1RAP) gene, exons 10 and 11  |
| 5636                   | 18830                 | 31906             | 0.96                 | 7.0E-07                                       | 6005700                    | NT                            | Homo sapiens ATP-binding cassette, sub-family A (ABC1), member 8 (ABCA8), mRNA   |
| 5636                   | 18830                 | 31907             | 0.96                 | 7.0E-07                                       | 6005700                    | NT                            | Homo sapiens ATP-binding cassette, sub-family A (ABC1), member 8 (ABCA8), mRNA   |
| 1962                   | 15105                 | 28205             | 3.47                 | 6.0E-07                                       | AW85558.1                  | EST_HUMAN                     | CM3-CT0277-221089-024-e11 CT0277 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                            |                               | Homo sapiens HLA class III region containing tenascin X (tenascin-X) gene, partial cds; cytochrome P450 21-hydroxylase (CYP21B), complement component C4 (C4B) G11, helicase (SKIZW), RD, complement factor B (Bf), and complement component C2 (C2) genes,> |
| 2561                   | 15888                 | 28812             | 2.43                 | 6.0E-07                                       | AF019413.1                 | NT                            | HYPOTHETICAL 24.1 KD PROTEIN IN LEF4P33 INTERGENIC REGION  |
| 4080                   | 17236                 |                   | 1.74                 | 6.0E-07                                       | P41479                     | SWISSPROT                     | 7g9407.x1 NCL_CGAP_Cot16 Homo sapiens cDNA clone IMAGE:3314149 3' similar to TR:075920 O75920 4F8L   |
| 8342                   | 22418                 | 35972             | 1.31                 | 6.0E-07                                       | BF001867.1                 | EST_HUMAN                     | CM0-BT0281-031189-087-e03 BT0281 Homo sapiens cDNA   |
| 12115                  | 25085                 | 39800             | 1.45                 | 6.0E-07                                       | BE063508.1                 | EST_HUMAN                     | CM4-NN1029-250300-121-A12 NN1029 Homo sapiens cDNA   |
| 12444                  | 26067                 |                   | 1.72                 | 6.0E-07                                       | AW903222.1                 | EST_HUMAN                     | hul11h05.x1 NCL_CGAP_Lu04 Homo sapiens cDNA clone IMAGE:3166329 3' similar to contains L1.b2 L1 L1 repetitive element;   |
| 13229                  | 25992                 |                   | 1.32                 | 6.0E-07                                       | BE222390.1                 | EST_HUMAN                     | repetitive element;  |
| 336                    | 13549                 |                   | 1.04                 | 5.0E-07                                       | AJ831883.1                 | EST_HUMAN                     | wh64f10.x1 NCL_CGAP_Kd11 Homo sapiens cDNA clone IMAGE:2985547 3'  |
| 1082                   | 14249                 |                   | 2.89                 | 6.0E-07                                       | AA380630.1                 | EST_HUMAN                     | EST83615 Supt cells Homo sapiens cDNA 5' end   |
| 3096                   | 16272                 |                   | 0.79                 | 5.0E-07                                       | AJ831883.1                 | EST_HUMAN                     | wh64f10.x1 NCL_CGAP_Kd11 Homo sapiens cDNA clone IMAGE:2985547 3'  |
| 4769                   | 17904                 | 30886             | 0.97                 | 5.0E-07                                       | AF149774.1                 | NT                            | Homo sapiens NOD1 protein (NOD1) gene, exons 4 through 14 and complete cds   |
| 6247                   | 19421                 | 32767             | 1.33                 | 5.0E-07                                       | U65067.1                   | NT                            | Mus musculus OG-2 homeodomain protein (OG-2) gene, partial cds   |
|                        |                       |                   |                      |   |                            |                               | ig06b005.x1 NCL_CGAP_CL11 Homo sapiens cDNA clone IMAGE:2107963 3' similar to contains Alu repetitive element; contains element A3R repetitive element;  |
| 7210                   | 20075                 | 33487             | 1.71                 | 5.0E-07                                       | AJ389881.1                 | EST_HUMAN                     | ig06b005.x1 NCL_CGAP_CL11 Homo sapiens cDNA clone IMAGE:2107963 3' similar to contains Alu repetitive element; contains element A3R repetitive element;  |
| 7210                   | 20075                 | 33488             | 1.71                 | 5.0E-07                                       | AJ389881.1                 | EST_HUMAN                     | repetitive element; contains element A3R repetitive element;   |
| 7503                   | 20578                 | 34050             | 16.93                | 5.0E-07                                       | AW070885.1                 | EST_HUMAN                     | xc31a02.x1 NCL_CGAP_B18 Homo sapiens cDNA clone IMAGE:2588362 3' similar to gb:X16341  |
| 8470                   | 21651                 | 35081             | 1.02                 | 5.0E-07                                       | Q9WUQ1                     | SWISSPROT                     | CYTCHROME C OXIDASE POLYPEPTIDE VIA-LYER (HUMAN);  |
| 8687                   | 21767                 |                   | 0.88                 | 5.0E-07                                       | P09593                     | SWISSPROT                     | ADAM-TS 1 PRECURSOR (A DISINTEGRIN AND METALLOPROTEINASE WITH THROMBOSPONDIN MOTIFS 1) (ADAMTS-1) (ADAM-TS1)   |
|                        |                       |                   |                      |   |                            |                               | S-ANTIGEN PROTEIN PRECURSOR  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 10577                  | 23612                 | 37217             | 5.47                 | 5.0E-07                                       | A088587.1                | EST_HUMAN                     | CM-BT178-220499-014 BT178 Homo sapiens cDNA  |
| 11805                  | 24795                 | 38493             | 5.69                 | 5.0E-07                                       | P11087                   | SWISSPROT                     | COLLAGEN ALPHA 1(I) CHAIN PRECURSOR  |
| 11880                  | 24868                 |                   | 2.08                 | 5.0E-07                                       | AJ271735.1               | NT                            | Homo sapiens Xq pseudautosomal region; segment 1/2   |
| 12256                  | 25968                 |                   | 1.2                  | 5.0E-07                                       | AL163285.2               | NT                            | Homo sapiens chromosome 21 segment HS21C085  |
| 12918                  | 26966                 |                   | 3.08                 | 5.0E-07                                       | AW862537.1               | EST_HUMAN                     | QVQ-CT03883-210400-204-512 CT03883 Homo sapiens cDNA   |
| 4108                   | 17260                 | 30261             | 1.66                 | 4.0E-07                                       | AW009602.1               | EST_HUMAN                     | WS84105.x1 NCI_CGAP_C68 Homo sapiens cDNA clone IMAGE:2604697 3'   |
| 7328                   | 20410                 |                   | 0.8                  | 4.0E-07                                       | AJ272265.1               | NT                            | Homo sapiens SPPP2 gene for secreted phosphoprotein 24 precursor, exons 1-8                                |
| 7417                   | 20495                 | 33983             | 0.97                 | 4.0E-07                                       | Q92ZV6                   | SWISSPROT                     | HISTONE DEACETYLASE 5 (HDS) (HISTONE DEACETYLASE MHDA1)  |
| 7417                   | 20495                 | 33984             | 0.97                 | 4.0E-07                                       | Q92ZV6                   | SWISSPROT                     | HISTONE DEACETYLASE 5 (HDS) (HISTONE DEACETYLASE MHDA1)  |
| 8107                   | 21189                 | 34709             | 0.51                 | 4.0E-07                                       | AL163207.2               | NT                            | Homo sapiens chromosome 21 segment HS21C007  |
| 8261                   | 22328                 | 35875             | 4.9                  | 4.0E-07                                       | AW418134.1               | EST_HUMAN                     | xy49g11.x1 NCI_CGAP_LUG4.1 Homo sapiens cDNA clone IMAGE:2856548 3'  |
| 10332                  | 23367                 | 36978             | 0.63                 | 4.0E-07                                       | BE001975.1               | EST_HUMAN                     | 001076748F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3956651 5'  |
| 10332                  | 23367                 | 36977             | 0.53                 | 4.0E-07                                       | BE001976.1               | EST_HUMAN                     | 001076748F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3956651 5'  |
| 10501                  | 23566                 | 37174             | 0.59                 | 4.0E-07                                       | AL163216.2               | NT                            | Homo sapiens chromosome 21 segment HS21C018  |
| 11179                  | 24248                 | 37881             | 3.88                 | 4.0E-07                                       | AJ765528.1               | EST_HUMAN                     | WB1608.x1 NCI_CGAP_Kid12 Homo sapiens cDNA clone IMAGE:2389703 3'  |
| 11179                  | 24248                 | 37882             | 3.88                 | 4.0E-07                                       | AJ765528.1               | EST_HUMAN                     | WB1608.x1 NCI_CGAP_Kid12 Homo sapiens cDNA clone IMAGE:2389703 3'  |
| 11495                  | 24553                 |                   | 1.69                 | 4.0E-07                                       | BE001828.1               | EST_HUMAN                     | PM1-BN0083-030300-003-e12 BN0083 Homo sapiens cDNA   |
| 11818                  | 24906                 |                   | 1.32                 | 4.0E-07                                       | BE067557.1               | EST_HUMAN                     | 601649083F1 NIH_MGC_73 Homo sapiens cDNA clone IMAGE:3932924 5'  |
| 13207                  | 25798                 |                   | 1.71                 | 4.0E-07                                       | 11437071                 | NT                            | Homo sapiens deleted in lymphocytic leukemia, 1 (DLEU1), mRNA  |
| 454                    | 13650                 | 26886             | 5.39                 | 3.0E-07                                       | U19719.1                 | NT                            | Human microfibril-associated glycoprotein (MFAP2) gene, putative promoter region and alternatively spliced |
| 598                    | 13786                 | 26806             | 3.59                 | 3.0E-07                                       | AJ271735.1               | NT                            | untranslated exons   |
| 1405                   | 14559                 | 27633             | 1.43                 | 3.0E-07                                       | M99149.1                 | NT                            | Homo sapiens Xq pseudautosomal region; segment 1/2   |
| 1655                   | 14808                 |                   | 3.62                 | 3.0E-07                                       | M94857.1                 | NT                            | Human polymorphic microsatellite DNA   |
| 2104                   | 15243                 |                   | 2.32                 | 3.0E-07                                       | AA526763.1               | EST_HUMAN                     | Human IgK subgroup I germline gene, exons 1 and 2, V-region 018 allele                                     |
| 2361                   | 15492                 | 28621             | 1.14                 | 3.0E-07                                       | M89149.1                 | NT                            | element contains L1.9 L1 repetitive element  |
| 2540                   | 15665                 | 28789             | 4.99                 | 3.0E-07                                       | BE005077.1               | EST_HUMAN                     | Human polymorphic microsatellite DNA   |
| 2540                   | 15665                 | 28789             | 4.99                 | 3.0E-07                                       | BE005077.1               | EST_HUMAN                     | MFO-BN0115-020300-001-f11 BN0115 Homo sapiens cDNA   |
| 3058                   | 16275                 | 29289             | 0.97                 | 3.0E-07                                       | T84704.1                 | EST_HUMAN                     | MFO-BN0115-020300-001-f11 BN0115 Homo sapiens cDNA   |
| 3228                   | 16402                 | 28414             | 1.78                 | 3.0E-07                                       | P38739                   | SWISSPROT                     | yeast12.1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:111635 5'                          |
| 4802                   | 17837                 |                   | 0.64                 | 3.0E-07                                       | P20740                   | SWISSPROT                     | HYPOTHETICAL 63.8 KD PROTEIN IN GUT1-RIM1 INTERGENIC REGION PRECURSOR                                      |
| 4849                   | 17882                 | 30970             | 8.04                 | 3.0E-07                                       | AV650201.1               | EST_HUMAN                     | OVOSTATIN PRECURSOR (OVONACROGLOBULIN)   |
| 4895                   | 18015                 | 30969             | 0.7                  | 3.0E-07                                       | AJ767236.1               | EST_HUMAN                     | AV650201 GLC Homo sapiens cDNA clone GLCCDD01 5'   |
|                        |                       |                   |                      |   |                          | EST_HUMAN                     | WB86b12.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2347867 3'                                    |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 6175                   | 18267                 | 31259             | 1.43                 | 3.0E-07                                       | T57850.1                 | EST_HUMAN                     | yc14h09.s1 Stragene lung (#837210) Homo sapiens cDNA clone IMAGE:80705 3' similar to similar to gb:M62882 ARACHIDONATE 12-LIPOXYGENASE (HUMAN)                                  |
| 5175                   | 18267                 | 31260             | 1.43                 | 3.0E-07                                       | T57850.1                 | EST_HUMAN                     | yc14h09.s1 Stragene lung (#837210) Homo sapiens cDNA clone IMAGE:80705 3' similar to similar to gb:M62882 ARACHIDONATE 12-LIPOXYGENASE (HUMAN)                                  |
| 5783                   | 18975                 | 32281             | 12.38                | 3.0E-07                                       | O88807                   | SWISSPROT                     | PROTEIN-ARGININE DEIMINASE TYPE IV (PEPTIDYLARGININE DEIMINASE IV) (PAD-R4)   |
| 6095                   | 19276                 | 32605             | 0.7                  | 3.0E-07                                       | O42280                   | SWISSPROT                     | WNT-14 PROTEIN PRECURSOR  |
| 6842                   | 18996                 |                   | 5.09                 | 3.0E-07                                       | AA815175.1               | EST_HUMAN                     | cc04c10.s1 NCI CGAP_GCB1 Homo sapiens cDNA clone IMAGE:138880 3'  |
| 7678                   | 20743                 | 34224             | 3.53                 | 3.0E-07                                       | AW787168.1               | EST_HUMAN                     | QV1-JM0038-200300-116-g02 UM0038 Homo sapiens cDNA  |
| 7841                   | 20896                 |                   | 1.3                  | 3.0E-07                                       | A1591065.1               | EST_HUMAN                     | tw28f11.x1 NCI CGAP_Ox35 Homo sapiens cDNA clone IMAGE:2261037 3' similar to contains Alu repetitive element; contains element MSR1   |
| 8330                   | 22406                 | 35059             | 0.48                 | 3.0E-07                                       | P33240                   | SWISSPROT                     | CLEAVAGE STIMULATION FACTOR, 64 KD SUBUNIT (CSTF 64 KD SUBUNIT) (CF-1 64 KD SUBUNIT)  |
| 8330                   | 22406                 | 35060             | 0.48                 | 3.0E-07                                       | P33240                   | SWISSPROT                     | CLEAVAGE STIMULATION FACTOR, 64 KD SUBUNIT (CSTF 64 KD SUBUNIT) (CF-1 64 KD SUBUNIT)  |
| 13194                  | 25777                 |                   | 4.26                 | 3.0E-07                                       | AJ132362.1               | NT                            | Rattus norvegicus mRNA for 45 kDa secretory protein, partial  |
| 28                     | 13267                 | 26270             | 7.32                 | 2.0E-07                                       | AF262888.1               | NT                            | Homo sapiens TRF2-interacting telomeric RAP-1 protein (RAP-1) mRNA, complete cds  |
| 158                    | 13383                 | 26413             | 6.06                 | 2.0E-07                                       | L77569.1                 | NT                            | Homo sapiens Digeorge syndrome critical region, telomeric end   |
| 158                    | 13383                 | 26414             | 6.06                 | 2.0E-07                                       | U38849.1                 | NT                            | Homo sapiens Digeorge syndrome critical region, telomeric end   |
| 186                    | 13403                 | 26437             | 35.88                | 2.0E-07                                       | AF003530.1               | NT                            | Fugu rubripes beta-cytoplasmic (vesicular) actin gene, complete cds   |
| 767                    | 13948                 | 26895             | 1.48                 | 2.0E-07                                       | AF003530.1               | NT                            | Homo sapiens homeobox protein CDX4 (CDX4) gene, complete cds and flanking repeat regions  |
| 767                    | 13948                 | 26896             | 1.48                 | 2.0E-07                                       | AF003530.1               | NT                            | Homo sapiens homeobox protein CDX4 (CDX4) gene, complete cds and flanking repeat regions  |
| 779                    | 13959                 |                   | 1.36                 | 2.0E-07                                       | P11369                   | SWISSPROT                     | RETROVIRUS-RELATED POLYPROTEIN [CONTAINS: REVERSE TRANSCRIPTASE; ENDONUCLEASE]  |
| 966                    | 14139                 | 27200             | 2.32                 | 2.0E-07                                       | AA223260.1               | EST_HUMAN                     | zr08b07.s1 Stragene NT2 neuronal precursor 837230 Homo sapiens cDNA clone IMAGE:850869 3' similar to gb1.31860 GLYCOPHORIN A PRECURSOR (HUMAN); contains Alu repetitive element |
| 967                    | 14140                 | 27201             | 2.02                 | 2.0E-07                                       | T63042.1                 | EST_HUMAN                     | yc15g04.s1 Stragene lung (#837210) Homo sapiens cDNA clone IMAGE:80780 3' similar to contains L1 repetitive element;  |
| 1189                   | 14351                 | 27400             | 1.55                 | 2.0E-07                                       | O26768                   | SWISSPROT                     | I16 AUTOANTIGEN   |
| 1630                   | 14782                 | 27688             | 2.08                 | 2.0E-07                                       | Q09701                   | SWISSPROT                     | HYPOPHETICAL 72.5 KD PROTEIN C2F7.10 IN CHROMOSOME 1  |
| 3708                   | 16869                 |                   | 0.63                 | 2.0E-07                                       | BF131397.1               | EST_HUMAN                     | 601818616F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:4044891 5'   |
| 3779                   | 16940                 | 28946             | 21.71                | 2.0E-07                                       | AF125348.1               | NT                            | Homo sapiens caveolin 1 (CAV1) gene, exon 3 and partial cds   |
| 5238                   | 18360                 |                   | 0.6                  | 2.0E-07                                       | AW902219.1               | EST_HUMAN                     | QV3-NN1023-260400-168-h11 NN1023 Homo sapiens cDNA  |

Page 213 of 550  
Table 4

Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 6480                   | 18680                 | 31638             | 1.52                 | 2.0E-07                                       | AW680068.1               | EST_HUMAN                     | RC3-NN0068-260400-021-g11 NN0068 Homo sapiens cDNA   |
| 6681                   | 26829                 | 33229             | 0.73                 | 2.0E-07                                       | AW448988.1               | EST_HUMAN                     | UHH-B19-ale-b-01-Q-U1.s1 NCI_CGAP_Sub6 Homo sapiens cDNA clone IMAGE:2794008 3'  |
| 6802                   | 18957                 | 33357             | 3.39                 | 2.0E-07                                       | AL208716.1               | EST_HUMAN                     | qg56d05.x1 Soares_NHT Homo sapiens cDNA clone IMAGE:1839177 3'   |
| 8694                   | 21744                 |                   | 3.37                 | 2.0E-07                                       | AV729390.1               | EST_HUMAN                     | AV729390 HTC Homo sapiens cDNA clone HTCAE002 5'   |
| 8693                   | 21972                 | 35508             | 1.11                 | 2.0E-07                                       | AA035188.1               | EST_HUMAN                     | zk27g08.a1 Soares_pregnant_uterus_NbHPU Homo sapiens cDNA clone IMAGE:471808 3'  |
| 8693                   | 23002                 |                   | 1.44                 | 2.0E-07                                       | AL163303.2               | NT                            | Homo sapiens chromosome 21 segment HS21C103  |
| 10474                  | 23509                 | 37122             | 6.34                 | 2.0E-07                                       | AW602507.1               | EST_HUMAN                     | CM4-NN0003-280300-124-e08 NN0003 Homo sapiens cDNA   |
| 10708                  | 23739                 | 37342             | 1.01                 | 2.0E-07                                       | P00751                   | SWISSPROT                     | COMPLEMENT FACTOR B PRECURSOR (C3/C5 CONVERTASE) (PROPERDIN FACTOR B)  |
| 10708                  | 23739                 | 37343             | 1.01                 | 2.0E-07                                       | P00751                   | SWISSPROT                     | (GLYCINE-RICH BETA GLYCOPROTEIN) (GBG) (PBP2)  |
| 12138                  | 26656                 |                   | 2.96                 | 2.0E-07                                       | BE153717.1               | EST_HUMAN                     | COMPLEMENT FACTOR B PRECURSOR (C3/C5 CONVERTASE) (PROPERDIN FACTOR B)  |
| 12228                  | 25997                 |                   | 2.38                 | 2.0E-07                                       | AF732462.1               | EST_HUMAN                     | (GLYCINE-RICH BETA GLYCOPROTEIN) (GBG) (PBP2)  |
| 1126                   | 14281                 |                   | 0.76                 | 1.0E-07                                       | AL163282.2               | NT                            | PM4-HT0339-260100-008-H07 HT0339 Homo sapiens cDNA   |
| 2888                   | 14704                 | 27784             | 2.08                 | 1.0E-07                                       | P09258                   | SWISSPROT                     | zn8sh11.x5 Stratiogene lung carcinoma 937218 Homo sapiens cDNA clone IMAGE:565028 3' similar to contains THR.b2 THR repetitive element   |
| 3838                   | 14291                 |                   | 1.24                 | 1.0E-07                                       | AL163282.2               | NT                            | Homo sapiens chromosome 21 segment HS21C082  |
| 4408                   | 17660                 | 30534             | 2.91                 | 1.0E-07                                       | AV718682.1               | EST_HUMAN                     | GLYCOPROTEIN GPV   |
| 4408                   | 17650                 | 30535             | 2.91                 | 1.0E-07                                       | AV718682.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C082  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens chromosome 21 segment HS21C082  |
| 6832                   | 19701                 | 33180             | 0.8                  | 1.0E-07                                       | UB2871.2                 | NT                            | AV718682 GLC Homo sapiens cDNA clone GLCFNF04 5'   |
| 7006                   | 20142                 | 33560             | 4.69                 | 1.0E-07                                       | BE047874.1               | EST_HUMAN                     | AV718682 GLC Homo sapiens cDNA clone GLCFNF04 5'   |
| 7006                   | 20142                 | 33661             | 4.69                 | 1.0E-07                                       | BE047874.1               | EST_HUMAN                     | Homo sapiens chromosome Xq28 melanoma antigen family A2a (MAGEA2A), melanoma antigen family A12 (MAGEA12), melanoma antigen family A2b (MAGEA2B), melanoma antigen family A3 (MAGEA3), calitractin (CALT), NAD(P)H dehydrogenase-like protein (NSDHL), and LI> |
| 7662                   | 20728                 | 34205             | 7.6                  | 1.0E-07                                       | N55081.1                 | EST_HUMAN                     | tz43d06.y1 NCI_CGAP_Brm52 Homo sapiens cDNA clone IMAGE:2281339 5'   |
| 7826                   | 20881                 | 34382             | 0.69                 | 1.0E-07                                       | BF375909.1               | EST_HUMAN                     | tz43d06.y1 NCI_CGAP_Brm52 Homo sapiens cDNA clone IMAGE:2281339 5'   |
| 7826                   | 20881                 | 34383             | 0.69                 | 1.0E-07                                       | BF375909.1               | EST_HUMAN                     | y43c07.a1 Soares_fetal_liver_spleen_TNPLS Homo sapiens cDNA clone IMAGE:245484 3'  |
| 7854                   | 20809                 | 34413             | 1.24                 | 1.0E-07                                       | AL163281.2               | NT                            | PM4-TN0024-030800-002-b05 TN0024 Homo sapiens cDNA   |
| 8410                   | 21491                 | 35020             | 2.76                 | 1.0E-07                                       | P07435                   | SWISSPROT                     | PM4-TN0024-030800-002-b05 TN0024 Homo sapiens cDNA   |
| 8410                   | 21491                 | 35021             | 2.76                 | 1.0E-07                                       | P07435                   | SWISSPROT                     | Homo sapiens chromosome 21 segment HS21C081  |
| 9155                   | 22233                 | 35778             | 2.7                  | 1.0E-07                                       | AA683576.1               | EST_HUMAN                     | ENTEROPEPTIDASE (ENTEROKINASE)   |
|                        |                       |                   |                      |   |                          |                               | ENTEROPEPTIDASE (ENTEROKINASE)   |
| 9470                   | 22527                 | 36090             | 1.05                 | 1.0E-07                                       | P57110                   | SWISSPROT                     | ADAM-TS 8 PRECURSOR (A DISINTEGRIN AND METALLOPROTEINASE WITH THROMBOSPONDIN MOTIFS 8) (ADAMTS-8) (ADAM-TS8) (METH-2)  |



Page 214 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 9816                   | 22898                 | 36436             | 0.6                  | 1.0E-07                                       | BE327843.1               | EST_HUMAN                     | h128h06.x1 NCI_CGAP_Mel16 Homo sapiens cDNA clone IMAGE:3171419 3' similar to contains MER18.13    |
| 10140                  | 23178                 | 36776             | 2.35                 | 1.0E-07                                       | BF974524.1               | EST_HUMAN                     | MER18 repetitive element;  |
| 10149                  | 23187                 | 36784             | 1.23                 | 1.0E-07                                       | AA386311.1               | EST_HUMAN                     | 602137714F1 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:4274428 5'                                    |
| 10682                  | 23716                 |                   | 1.22                 | 1.0E-07                                       | AL163282.2               | NT                            | EST185054 Bratin IV Homo sapiens cDNA  |
| 12085                  | 25065                 | 36771             | 2.35                 | 1.0E-07                                       | AB341136.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C082  |
| 12508                  | 25939                 | 31761             | 3.37                 | 1.0E-07                                       | BE048770.1               | EST_HUMAN                     | q680603.x1 NCI_CGAP_G08 Homo sapiens cDNA clone IMAGE:2009892 3'                                   |
| 12569                  | 25438                 |                   | 1.45                 | 1.0E-07                                       | X84467.1                 | NT                            | h63c11.x1 NCI_CGAP_Kd11 Homo sapiens cDNA clone IMAGE:3132212 3' similar to TR-O65722 O65722       |
| 12852                  | 25968                 |                   | 2.1                  | 1.0E-07                                       | X51755.1                 | NT                            | DJ1163J1.1;  |
| 7433                   | 20510                 | 33982             | 0.75                 | 9.0E-08                                       | AL633682.1               | EST_HUMAN                     | H. sapiens ALAD gene for porphobilinogen synthase  |
| 10091                  | 23129                 | 36732             | 2.04                 | 9.0E-08                                       | AV734819.1               | EST_HUMAN                     | Human lambda-immunoglobulin constant region complex (germline)                                     |
| 11457                  | 24517                 | 38185             | 1.92                 | 9.0E-08                                       | AB91052.1                | EST_HUMAN                     | h651606.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2080185 3'                            |
| 11965                  | 24950                 | 38656             | 2.38                 | 9.0E-08                                       | AL163301.2               | NT                            | AV734819 cda Homo sapiens cDNA clone cDABF808 5'   |
| 12458                  | 25320                 |                   | 2.51                 | 9.0E-08                                       | AJ251973.1               | NT                            | w130a07.x1 NCI_CGAP_Gas4 Homo sapiens cDNA clone IMAGE:2446932 3' similar to contains OFR.12       |
| 622                    | 16017                 |                   | 2.09                 | 8.0E-08                                       | AB111352.1               | EST_HUMAN                     | OFR repetitive element;  |
| 1075                   | 14241                 |                   | 1.01                 | 8.0E-08                                       | BE795489.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C101  |
| 3634                   | 16798                 |                   | 1.57                 | 8.0E-08                                       | BE795489.1               | EST_HUMAN                     | Homo sapiens partial steelfr-1 gene  |
| 8937                   | 22016                 | 36557             | 5.35                 | 8.0E-08                                       | AJ752387.1               | EST_HUMAN                     | h16b05.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2328273 3'                             |
| 8937                   | 22016                 | 35558             | 5.35                 | 8.0E-08                                       | AJ752387.1               | EST_HUMAN                     | 601690133F1 NIH_MGC_7 Homo sapiens cDNA clone IMAGE:3943976 5'                                     |
| 9827                   | 22867                 | 36449             | 3.03                 | 8.0E-08                                       | AW970893.1               | EST_HUMAN                     | 601580133F1 NIH_MGC_7 Homo sapiens cDNA clone IMAGE:3943976 5'                                     |
| 10788                  | 23821                 | 37445             | 0.48                 | 8.0E-08                                       | AF111167.2               | NT                            | cnr15c02.x1 Normal Human Trabecular Bone Cells Homo sapiens cDNA clone NHTBC_cnr15c02 random       |
| 11523                  | 24579                 |                   | 1.73                 | 8.0E-08                                       | AF23417.1                | NT                            | cnr15c02.x1 Normal Human Trabecular Bone Cells Homo sapiens cDNA clone NHTBC_cnr15c02 random       |
| 82                     | 13317                 | 26345             | 3.91                 | 7.0E-08                                       | Q02257                   | SWISSPROT                     | EST1362778 IMAGE resequences, MAGK Homo sapiens cDNA   |
| 1392                   | 14546                 | 27822             | 19.51                | 7.0E-08                                       | X04809.1                 | NT                            | Homo sapiens jun dimerization protein gene, partial cds; cfos gene, complete cds; and unknown gene |
| 3656                   | 16829                 | 29839             | 0.85                 | 7.0E-08                                       | P15305                   | SWISSPROT                     | Homo sapiens microsomal epoxide hydrolase (EPHX1) gene, complete cds                               |
| 3666                   | 16829                 | 29840             | 0.88                 | 7.0E-08                                       | P15305                   | SWISSPROT                     | ANKYRIN 1 (ERYTHROCYTE ANKYRIN)  |
| 6332                   | 18445                 | 31413             | 0.62                 | 7.0E-08                                       | T85891.1                 | EST_HUMAN                     | Rat mRNA for ribosomal protein L31   |
| 11052                  | 24129                 |                   | 1.73                 | 7.0E-08                                       | AI635743.1               | EST_HUMAN                     | DYNEIN HEAVY CHAIN (DYHC)  |
| 11970                  | 24955                 | 38658             | 4.1                  | 7.0E-08                                       | U24070.1                 | NT                            | DYNEIN HEAVY CHAIN (DYHC)  |

Page 215 of 550  
Table 4  
Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 12978                  | 16829                 | 28839             | 1.84                 | 7.0E-08                                       | P16305                   | SWISSPROT                     | DYNEIN HEAVY CHAIN (DYHC)  |
| 12978                  | 16829                 | 28840             | 1.84                 | 7.0E-08                                       | P16305                   | SWISSPROT                     | DYNEIN HEAVY CHAIN (DYHC)  |
| 840                    | 14018                 | 27073             | 3.3                  | 6.0E-08                                       | AL163248.2               | NT                            | Homo sapiens chromosome 21 segment HS21C048  |
| 840                    | 14018                 | 27074             | 3.3                  | 6.0E-08                                       | AL163248.2               | NT                            | Homo sapiens chromosome 21 segment HS21C048  |
| 2436                   | 15504                 | 28663             | 1.77                 | 6.0E-08                                       | BE144398.1               | EST_HUMAN                     | MRO-170168-191189-004-g09 HT0168 Homo sapiens cDNA   |
| 3129                   | 16305                 | 28319             | 0.68                 | 6.0E-08                                       | 7682473                  | NT                            | Homo sapiens KIAA1074 protein (KIAA1074), mRNA   |
| 4363                   | 17806                 | 30487             | 1.15                 | 6.0E-08                                       | AL163248.2               | NT                            | Homo sapiens chromosome 21 segment HS21C048  |
| 8137                   | 21219                 |                   | 0.69                 | 6.0E-08                                       | P08547                   | SWISSPROT                     | LINE-1 REVERSE TRANSCRIPTASE HOMOLOG   |
| 9829                   | 22504                 |                   | 0.55                 | 6.0E-08                                       | AA827075.1               | EST_HUMAN                     | ab5605.s1 NCL_CGAP_GCBI Homo sapiens cDNA clone IMAGE:1335368 3' similar to contains<br>MER12.b3 MER12 repetitive element ;  |
| 11701                  | 24698                 | 38390             | 2.16                 | 6.0E-08                                       | P11369                   | SWISSPROT                     | RETROVIRUS-RELATED POLYPROTEIN [CONTAINS: REVERSE TRANSCRIPTASE ;<br>ENDONUCLEASE]   |
| 11823                  | 24812                 |                   | 1.43                 | 6.0E-08                                       | AL163209.2               | NT                            | Homo sapiens chromosome 21 segment HS21C009  |
| 87                     | 13322                 | 26350             | 2.17                 | 5.0E-08                                       | AL163303.2               | NT                            | Homo sapiens chromosome 21 segment HS21C103  |
| 2309                   | 16441                 | 28576             | 3.93                 | 5.0E-08                                       | AA493851.1               | EST_HUMAN                     | rh03b09.s1 NCL_CGAP_Thy1 Homo sapiens cDNA clone IMAGE:943183 similar to contains Alu repetitive<br>element;   |
| 12185                  | 25144                 |                   | 4.55                 | 6.0E-08                                       | P08681                   | SWISSPROT                     | COMPLEMENT C2 PRECURSOR (C3/C5 CONVERTASE)   |
| 12382                  | 25271                 | 32077             | 1.77                 | 5.0E-08                                       | AW851878.1               | EST_HUMAN                     | QV6-CT0225-131088-034-a12 CT0225 Homo sapiens cDNA   |
| 1789                   | 14948                 | 28040             | 1.03                 | 4.0E-08                                       | P25723                   | SWISSPROT                     | DORSAL-VENTRAL PATTERNING TOLLOID PROTEIN PRECURSOR  |
| 1789                   | 14948                 | 28041             | 1.03                 | 4.0E-08                                       | P25723                   | SWISSPROT                     | DORSAL-VENTRAL PATTERNING TOLLOID PROTEIN PRECURSOR  |
| 2560                   | 16127                 |                   | 1.06                 | 4.0E-08                                       | AL079581.1               | EST_HUMAN                     | DKFZp434J0426_J1 434 (synonym: htss3) Homo sapiens cDNA clone DKFZp434J0426 5'   |
| 3132                   | 16308                 |                   | 1.01                 | 4.0E-08                                       | AI078417.1               | EST_HUMAN                     | ca05602.x1 Soares fetal liver spleen _INFLS_S1 Homo sapiens cDNA clone IMAGE:1674458 3' similar to<br>contains Alu repetitive element;                             |
| 4024                   | 17180                 | 30189             | 0.65                 | 4.0E-08                                       | U82688.1                 | NT                            | Homo sapiens shox gene, alternatively spliced products, complete cds   |
| 6535                   | 18698                 | 33071             | 1.07                 | 4.0E-08                                       | P62624                   | SWISSPROT                     | URIDINE PHOSPHORYLASE (UDRPASE)  |
| 8968                   | 22077                 | 33617             | 0.9                  | 4.0E-08                                       | O15983                   | SWISSPROT                     | TRANSMEMBRANE PROTEIN, SERINE 2  |
| 9340                   | 22416                 | 35869             | 1.13                 | 4.0E-08                                       | L42871.1                 | NT                            | Cricetulus griseus ribosomal transcription factor (UBF2) mRNA, complete cds  |
| 8946                   | 22865                 |                   | 1.56                 | 4.0E-08                                       | P08547                   | SWISSPROT                     | LINE-1 REVERSE TRANSCRIPTASE HOMOLOG   |
| 10336                  | 23571                 |                   | 0.85                 | 4.0E-08                                       | AI016942.1               | EST_HUMAN                     | cd78d12.s1 Soares fetal spleen _Nc2-HF8_9w Homo sapiens cDNA clone IMAGE:1622803 3'  |
| 10507                  | 23832                 | 37241             | 4.75                 | 4.0E-08                                       | AI050027.1               | EST_HUMAN                     | ar22d10.x1 Gessler Wilms tumor Homo sapiens cDNA clone IMAGE:1680411 3' similar to contains Alu<br>repetitive element; contains element MER22 repetitive element ; |
| 11328                  | 24391                 | 38037             | 5.16                 | 4.0E-08                                       | AA398627.1               | EST_HUMAN                     | 276806.l1 Soares testis_NHT Homo sapiens cDNA clone IMAGE:78247 5' similar to TR-G505579<br>G505579 NA/CA-K-EXCHANGER ;  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 11328                  | 24391                 | 38038             | 5.16                 | 4.0E-08                                       | AA383627.1               | EST_HUMAN                     | z476308.t1 Scores_testis_NHT Homo sapiens cDNA clone IMAGE:728247 5' similar to TR:G505579  |
| 11349                  | 24411                 | 38084             | 11.88                | 4.0E-08                                       | BF682493.1               | EST_HUMAN                     | G605579 NAVCA,K-EXCHANGER. ;  |
| 11349                  | 24411                 | 38065             | 11.88                | 4.0E-08                                       | BF682493.1               | EST_HUMAN                     | G02248024F1 NIH_MGC 62 Homo sapiens cDNA clone IMAGE:4333300 5'   |
| 12160                  | 28108                 |                   | 1.93                 | 4.0E-08                                       | W76158.1                 | EST_HUMAN                     | G02248024F1 NIH_MGC 62 Homo sapiens cDNA clone IMAGE:4333300 5'   |
| 12804                  | 26698                 |                   | 2.01                 | 4.0E-08                                       | AI343353.1               | EST_HUMAN                     | z485g03.t1 Scores_fetal_heart_NbH110W Homo sapiens cDNA clone IMAGE:345558 5' similar to contains L1.11 L1 repetitive element ;   |
| 5728                   | 18921                 | 32215             | 2.27                 | 3.0E-08                                       | BE018348.1               | EST_HUMAN                     | tf585a11.x1 NCI_CGAP_C016 Homo sapiens cDNA clone IMAGE:2062076 3' similar to contains MER18.b3   |
| 7115                   | 18541                 | 31498             | 6.01                 | 3.0E-08                                       | AI782737.1               | EST_HUMAN                     | MER18 MER18 repetitive element ;  |
| 7711                   | 20776                 | 34262             | 1.43                 | 3.0E-08                                       | AL163246.2               | NT                            | bb78a10.y1 NIH_MGC_10 Homo sapiens cDNA clone IMAGE:3048570 5' similar to TR:Q8Z168 Q9Z168  |
| 7928                   | 20978                 |                   | 3.32                 | 3.0E-08                                       | AI436352.1               | EST_HUMAN                     | SYNTAXIN 17. ;  |
| 10102                  | 23140                 |                   | 0.83                 | 3.0E-08                                       | AF055066.1               | NT                            | qs78h11.y5 NCI_CGAP_P128 Homo sapiens cDNA clone IMAGE:1944045 5'   |
| 11278                  | 24343                 | 37983             | 1.64                 | 3.0E-08                                       | AI218001.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C046   |
| 11957                  | 24942                 | 38848             | 1.32                 | 3.0E-08                                       | AF111167.2               | NT                            | th83h09.x1 Scores_NSF_F8_gW_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:2128273 3' similar to TR:Q13537 Q13537 MER37 TRANSPOSABLE ELEMENT, COMPLETE CONSENSUS SEQUENCE. ;  |
| 12196                  | 25123                 |                   | 33.85                | 3.0E-08                                       | R18420.1                 | EST_HUMAN                     | Homo sapiens MHC class 1 region   |
| 211                    | 13434                 |                   | 4.16                 | 2.0E-08                                       | AW302896.1               | EST_HUMAN                     | qh21a04.x1 Scores_NFL_T_Q8C_S1 Homo sapiens cDNA clone IMAGE:1845284 3'   |
| 236                    | 19458                 |                   | 5.76                 | 2.0E-08                                       | AA425598.1               | EST_HUMAN                     | Homo sapiens Jun dimerization protein gene, partial cds; cdc gene, complete cds; and unknown gene repetitive element  |
| 509                    | 13703                 | 28732             | 4.46                 | 2.0E-08                                       | AF198349.1               | NT                            | yg02704.t1 Scores Infant brain 1N1B Homo sapiens cDNA clone IMAGE:30948 5' similar to contains Alu  |
| 677                    | 13863                 | 26893             | 9.7                  | 2.0E-08                                       | AW888438.1               | EST_HUMAN                     | xr87f06.x1 NCI_CGAP_Lu26 Homo sapiens cDNA clone IMAGE:2787139 3'   |
| 677                    | 13863                 | 26894             | 9.7                  | 2.0E-08                                       | AW888438.1               | EST_HUMAN                     | zw48807.t1 Scores_total_fetus_Nb2H1F8_gW Homo sapiens cDNA clone IMAGE:773317 5' similar to contains Alu repetitive element contains element MER16 repetitive element ; |
| 1014                   | 14188                 |                   | 7.75                 | 2.0E-08                                       | BE280477.1               | EST_HUMAN                     | Gallus gallus Duck2 protein (Duck2) mRNA, complete cds  |
| 1373                   | 14528                 | 27802             | 1.46                 | 2.0E-08                                       | AL163247.2               | NT                            | MFO-OT0080-240200-001-g08 OT0080 Homo sapiens cDNA  |
| 1774                   | 14823                 | 28017             | 0.98                 | 2.0E-08                                       | AW841880.1               | EST_HUMAN                     | MFO-OT0080-240200-001-g08 OT0080 Homo sapiens cDNA  |
| 1780                   | 14829                 |                   | 2.08                 | 2.0E-08                                       | BE734871.1               | EST_HUMAN                     | 601166321F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3138883 5'   |
| 1902                   | 15045                 |                   | 6.7                  | 2.0E-08                                       | AW270271.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C047   |
| 2608                   | 15732                 |                   | 1.86                 | 2.0E-08                                       | K00216.1                 | NT                            | LB-CN0024-030300-028-C01 CN0024 Homo sapiens cDNA   |
| 3279                   | 18453                 | 29474             | 5.61                 | 2.0E-08                                       | O42280                   | SWISSPROT                     | 601570463F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3845189 5'   |
|                        |                       |                   |                      |   |                          |                               | xp43h11.x1 NCI_CGAP_HN11 Homo sapiens cDNA clone IMAGE:2743149 3'   |
|                        |                       |                   |                      |   |                          |                               | Sheep His-RNA-GUG   |
|                        |                       |                   |                      |   |                          |                               | WNT-14 PROTEIN PRECURSOR  |

Page 217 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 3279                   | 16453                 | 29475             | 5.61                 | 2.0E-08                                       | O42280                   | SWISSPROT                     | WNT-14 PROTEIN PRECURSOR   |
| 3662                   | 17120                 |                   | 1.63                 | 2.0E-08                                       | AW813620.1               | EST_HUMAN                     | RC3-ST0197-161099-012-b03 ST0197 Homo sapiens cDNA   |
| 4169                   | 17339                 | 30332             | 0.62                 | 2.0E-08                                       | U82688.1                 | NT                            | Homo sapiens shox gene, alternatively spliced products, complete cds   |
| 4825                   | 17684                 |                   | 1.46                 | 2.0E-08                                       | AA4590.40.1              | EST_HUMAN                     | aa26c07.t1 NCI_CGAP_G081 Homo sapiens cDNA clone IMAGE:814380 5' similar to contains L1.12 L1 repetitive element;                      |
| 5072                   | 18200                 |                   | 3.5                  | 2.0E-08                                       | AW572861.1               | EST_HUMAN                     | he17f08.x2 NCI_CGAP_CML1 Homo sapiens cDNA clone IMAGE:2919327 3' similar to contains Alu repetitive element;                          |
| 5753                   | 18946                 | 32247             | 0.85                 | 2.0E-08                                       | AA813204.1               | EST_HUMAN                     | sl80h11.s1 Scores_testis_NHT Homo sapiens cDNA clone 1377189 3'  |
| 5955                   | 19141                 | 32457             | 1                    | 2.0E-08                                       | AW088824.1               | EST_HUMAN                     | xd32c04.x1 NCI_CGAP_Ov23 Homo sapiens cDNA clone IMAGE:2595462 3' similar to contains MER18.b3   |
| 6163                   | 21275                 | 34798             | 1.11                 | 2.0E-08                                       | P10272                   | SWISSPROT                     | MER18 MER18 repetitive element;  |
| 8301                   | 21383                 | 34904             | 1.5                  | 2.0E-08                                       | AA460121.1               | EST_HUMAN                     | POL POLYPYRROLINE[CONTAINS: PROTEASE; REVERSE TRANSCRIPTASE; ENDONUCLEASE]   |
| 9288                   | 22362                 |                   | 0.89                 | 2.0E-08                                       | AU136878.1               | EST_HUMAN                     | cd02g08.t1 Strabagene fetal retina 037202 Homo sapiens cDNA clone IMAGE:839674 3'  |
| 10738                  | 23771                 | 37381             | 0.89                 | 2.0E-08                                       | N78097.1                 | EST_HUMAN                     | AU139978 PLACE1 Homo sapiens cDNA clone PLACE1011719 5'  |
| 10738                  | 23771                 | 37382             | 0.83                 | 2.0E-08                                       | N78097.1                 | EST_HUMAN                     | yw7202.t1 Scores fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:248283 5' similar to contains LTR1.b3 LTR1 repetitive element; |
| 12476                  | 25329                 |                   | 1.77                 | 2.0E-08                                       | AL163284.2               | NT                            | yw7202.t1 Scores fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:248283 5' similar to contains LTR1.b3 LTR1 repetitive element; |
| 13065                  | 26159                 |                   | 1.8                  | 2.0E-08                                       | 11431678                 | NT                            | Homo sapiens chromosome 21 segment HS21Q84   |
| 1639                   | 16041                 | 27770             | 1.05                 | 1.0E-08                                       | P31792                   | SWISSPROT                     | Homo sapiens hypodermal protein FLJ11342 (FLJ11342), mRNA  |
| 1672                   | 14824                 | 27607             | 1.33                 | 1.0E-08                                       | P13002                   | SWISSPROT                     | POL POLYPYRROLINE[CONTAINS: REVERSE TRANSCRIPTASE; ENDONUCLEASE]   |
| 1672                   | 14824                 | 27608             | 1.33                 | 1.0E-08                                       | P13002                   | SWISSPROT                     | PROTEIN GRAINY-HEAD (DNA-BINDING PROTEIN ELF-1)(ELEMENT BINDING ACTIVITY)  |
| 1816                   | 14895                 | 28058             | 1.66                 | 1.0E-08                                       | AF125348.1               | NT                            | PROTEIN GRAINY-HEAD (DNA-BINDING PROTEIN ELF-1)(ELEMENT BINDING ACTIVITY)  |
| 2110                   | 15248                 |                   | 2.97                 | 1.0E-08                                       | BE141859.1               | EST_HUMAN                     | (TRANSCRIPTION FACTOR NTF-1)   |
| 3261                   | 16435                 | 29453             | 0.95                 | 1.0E-08                                       | BE246844.1               | EST_HUMAN                     | PROTEIN GRAINY-HEAD (DNA-BINDING PROTEIN ELF-1)(ELEMENT BINDING ACTIVITY)  |
| 3261                   | 16435                 | 29454             | 0.95                 | 1.0E-08                                       | BE246844.1               | EST_HUMAN                     | (TRANSCRIPTION FACTOR NTF-1)   |
| 6716                   | 18009                 | 32204             | 4.51                 | 1.0E-08                                       | AJ010770.1               | NT                            | Homo sapiens cavedin 1 (CAV1) gene, exon 3 and partial cds   |
| 7946                   | 20986                 | 34507             | 0.94                 | 1.0E-08                                       | P19474                   | SWISSPROT                     | PM2-HT0130-150959-001-t12 HT0130 Homo sapiens cDNA   |
| 8224                   | 21308                 | 34826             | 0.62                 | 1.0E-08                                       | AL163302.2               | NT                            | TCBAP1D5232 Pediatric pre-B cell acute lymphoblastic leukemia Baylor-HQSC project=TCBA Homo sapiens cDNA clone TCBAP5232               |
|                        |                       |                   |                      |   |                          |                               | TCBAP1D5232 Pediatric pre-B cell acute lymphoblastic leukemia Baylor-HQSC project=TCBA Homo sapiens cDNA clone TCBAP5232               |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens hyperion gene, exons 1-50   |
|                        |                       |                   |                      |   |                          |                               | 62 KD RO PROTEIN (SIOGREN SYNDROME TYPE A ANTIGEN (SS-A)) (RO(SS-A))   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens chromosome 21 segment HS21C102  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 8320                   | 21402                 | 34927             | 0.54                 | 1.0E-08                                       | AF224698.1               | NT                            | Homo sapiens mannosidase, beta A, lysosomal (MANBA) gene, and ubiquitin-conjugating enzyme E2D 3 (UBE2D3) genes, complete cds          |
| 8320                   | 21402                 | 34928             | 0.54                 | 1.0E-08                                       | AF224698.1               | NT                            | Homo sapiens mannosidase, beta A, lysosomal (MANBA) gene, and ubiquitin-conjugating enzyme E2D 3 (UBE2D3) genes, complete cds          |
| 8744                   | 21823                 | 35358             | 2.27                 | 1.0E-08                                       | AI016304.1               | EST_HUMAN                     | 635a05.s1 Soares_bas1s_NHT Homo sapiens cDNA clone IMAGE:1618736 3'  |
| 9405                   | 22478                 |                   | 0.56                 | 1.0E-08                                       | P08583                   | SWISSPROT                     | S-ANTIGEN PROTEIN PRECURSOR  |
| 9406                   | 22480                 | 36043             | 0.85                 | 1.0E-08                                       | BE072572.1               | EST_HUMAN                     | PM2-BT0546-210100-004-002 BT0546 Homo sapiens cDNA   |
| 10171                  | 23208                 | 36801             | 0.94                 | 1.0E-08                                       | P79110                   | SWISSPROT                     | TRICARBOXYLATE TRANSPORT PROTEIN PRECURSOR (CITRATE TRANSPORT PROTEIN) (CTP)   |
| 10778                  | 23811                 | 37434             | 0.87                 | 1.0E-08                                       | P08083                   | SWISSPROT                     | TRICARBOXYLATE CARRIER PROTEIN   |
| 11583                  | 24648                 | 38332             | 3.55                 | 1.0E-08                                       | AF044083.1               | NT                            | BONE MORPHOGENETIC PROTEIN 1 PRECURSOR (BMP-1)   |
| 12881                  | 25391                 |                   | 3.06                 | 1.0E-08                                       | X51755.1                 | NT                            | Homo sapiens major histocompatibility locus class III region   |
| 13137                  | 25925                 |                   | 1.26                 | 1.0E-08                                       | BF375398.1               | EST_HUMAN                     | Human lambda-immunoglobulin constant region complex (germline)   |
| 4357                   | 17500                 | 30481             | 4.17                 | 9.0E-09                                       | AL163279.2               | NT                            | MR4-ST0240-240700-013-g04 ST0240 Homo sapiens cDNA   |
| 4357                   | 17500                 | 30482             | 4.17                 | 9.0E-09                                       | AL163279.2               | NT                            | Homo sapiens chromosome 21 segment HS21C079  |
| 10267                  | 23302                 |                   | 0.63                 | 9.0E-09                                       | T07850.1                 | EST_HUMAN                     | ye58a12.s1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:121918 3'   |
| 7414                   | 20482                 | 33860             | 8.1                  | 8.0E-09                                       | AI183500.1               | EST_HUMAN                     | qp42a07.x1 Soares_fetal_heart_NbHH10W Homo sapiens cDNA clone IMAGE:1732184 3' similar to contains MSR1.11 MSR1 repetitive element     |
| 8189                   | 21271                 | 34798             | 2.54                 | 8.0E-09                                       | AW1900158.1              | EST_HUMAN                     | CM0-NN1004-100300-273-908 NN1004 Homo sapiens cDNA   |
| 8189                   | 22267                 |                   | 2.53                 | 8.0E-09                                       | AA938892.1               | EST_HUMAN                     | tp74008.s1 Soares_NFL_T_GBC_S11 Homo sapiens cDNA clone IMAGE:1582576 3'   |
| 3695                   | 16886                 |                   | 1.98                 | 7.0E-09                                       | D88842.1                 | NT                            | Homo sapiens DNA for 3-ketacyl-CoA thiolase beta-subunit of mitochondrial trifunctional protein, exon 2, 3                             |
| 4115                   | 17269                 |                   | 0.98                 | 7.0E-09                                       | U50871.1                 | NT                            | Human familial Alzheimer's disease (S1M2) gene, complete cds   |
| 8088                   | 21168                 |                   | 0.58                 | 7.0E-09                                       | BF108766.1               | EST_HUMAN                     | 7445a10.x1 Soares_NSF_F8_9W_OT_PA_P_S11 Homo sapiens cDNA clone IMAGE:3524443 3' similar to contains MER28.b2 MER29 repetitive element |
| 8237                   | 21319                 |                   | 0.99                 | 7.0E-09                                       | AA258200.1               | EST_HUMAN                     | zr60c05.11 Soares_NIHMPu_S11 Homo sapiens cDNA clone IMAGE:681882 5' similar to contains L1.12 L1 repetitive element                   |
| 9460                   | 22517                 | 36080             | 2.86                 | 7.0E-09                                       | L09709.1                 | NT                            | Human lysosomal membrane glycoprotein-2 (LAMP2) gene, 5' end and flanking region   |
| 10396                  | 23421                 | 37028             | 1.95                 | 7.0E-09                                       | BE254850.1               | EST_HUMAN                     | 60111173F1 NIH_MGC_16 Homo sapiens cDNA clone IMAGE:3331834 5'   |
| 10554                  | 23580                 |                   | 0.78                 | 7.0E-09                                       | AA058626.1               | EST_HUMAN                     | zf58a07.s1 Soares retina N2b-4HR Homo sapiens cDNA clone IMAGE:381156 3' similar to contains L1.12 L1 repetitive element               |
| 10910                  | 23983                 |                   | 2.01                 | 7.0E-09                                       | T07850.1                 | EST_HUMAN                     | ye58a12.s1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:121918 3'   |
| 2221                   | 15355                 |                   | 0.95                 | 6.0E-09                                       | AL040439.1               | EST_HUMAN                     | DKFZp434C0514.1 434 (synonym: htes3) Homo sapiens cDNA clone DKFZp434C0514 5'  |
| 5095                   | 18223                 | 31195             | 6.2                  | 6.0E-09                                       | BE169421.1               | EST_HUMAN                     | PM1-HT0527-160200-001-H05 HT0527 Homo sapiens cDNA   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 6498                   | 18896                 | 31711             | 9.33                 | 6.0E-09                                       | AW195784.1               | EST_HUMAN                     | x085f083.x1 Soares_NFL_T_GBC S1 Homo sapiens cDNA clone IMAGE:2701311 3'  |
| 8775                   | 21854                 | 35398             | 1.11                 | 6.0E-09                                       | BE161663.1               | EST_HUMAN                     | MR3-HT0446-260300-201-h12 HT0446 Homo sapiens cDNA  |
| 9377                   | 22452                 | 36014             | 2.18                 | 6.0E-09                                       | 4503710                  | NT                            | Homo sapiens fibroblast growth factor receptor 9 (achondroplasia, thanatophoric dwarfism) (FGFR3) mRNA  |
| 10483                  | 23618                 |                   | 3.4                  | 6.0E-09                                       | AF200929.2               | NT                            | Homo sapiens testis-specific kinase substrate (TSKS) gene, complete cds   |
| 10669                  | 24049                 | 37682             | 1.66                 | 6.0E-09                                       | BF108755.1               | EST_HUMAN                     | 7456f10.x1 Soares_NSIF_F8_GW_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:3524443 3' similar to contains MER29.b2 MER29 repetitive element;   |
| 12089                  | 25039                 | 38776             | 1.37                 | 6.0E-09                                       | CO1803.1                 | EST_HUMAN                     | HUMG0003762 Human adult (K.Ohara) Homo sapiens cDNA   |
| 1447                   | 14800                 | 27677             | 3.47                 | 5.0E-09                                       | BE148284.1               | EST_HUMAN                     | RC2-HT0262-120200-014-h10 HT0262 Homo sapiens cDNA  |
| 1900                   | 16043                 | 28154             | 7.4                  | 5.0E-09                                       | AL163284.2               | NT                            | Homo sapiens chromosome 21 segment HS21C084   |
| 6640                   | 19703                 | 33076             | 2.22                 | 6.0E-09                                       | AA359454.1               | EST_HUMAN                     | EST68748 Fetal lung II Homo sapiens cDNA 5' end   |
|                        |                       |                   |                      |   |                          |                               | Human germline T-cell receptor beta chain Dopamine-beta-hydroxylase-like, TRY1, TRY2, TRY3, TCRBV27S1P, TCRBV231A2N1T, TCRBV6S1A1T, TCRBV7S1A1N2T, TCRBV6S1A1T, TCRBV13S8, TCRBV6S1P, TCRBV7S3A2T, TCRBV13S2A1T, TCRBV6S2A2PT, TCRBV7S2A1N4T, TCRBV13S913S> |
| 6988                   | 18507                 | 31523             | 0.66                 | 5.0E-09                                       | U06059.1                 | NT                            | OLFACTORY RECEPTOR-LIKE PROTEIN COR5  |
| 8785                   | 21894                 | 35407             | 0.83                 | 6.0E-09                                       | P37071                   | SWISSPROT                     | PM2-UM0053-240300-005-c09 UM0053 Homo sapiens cDNA  |
| 10300                  | 23395                 | 36940             | 3.25                 | 5.0E-09                                       | AW769687.1               | EST_HUMAN                     | z60e09.s1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:795880 3'   |
| 11944                  | 24930                 | 36832             | 1.87                 | 5.0E-09                                       | AA460142.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C082   |
| 634                    | 13727                 |                   | 1.64                 | 4.0E-09                                       | AL163282.2               | NT                            | Homo sapiens chromosome 21 segment HS21C085   |
| 987                    | 14159                 |                   | 2.75                 | 4.0E-09                                       | AL163285.2               | NT                            | Homo sapiens chromosome 21 segment HS21C086   |
| 1497                   | 14850                 | 27782             | 1.86                 | 4.0E-09                                       | 9558718                  | NT                            | Homo sapiens hypophyseal protein (AF038169), mRNA   |
| 2500                   | 15827                 | 28747             | 5.32                 | 4.0E-09                                       | AA350878.1               | EST_HUMAN                     | EST68385 Infant brain Homo sapiens cDNA 5' end similar to similar to heat shock protein, 90 kDa   |
| 8030                   | 21113                 | 34631             | 0.53                 | 4.0E-09                                       | AA495747.1               | EST_HUMAN                     | z04c08.f1 Soares_NHIMPu_S1 Homo sapiens cDNA clone IMAGE:768298 5'  |
| 8719                   | 21789                 | 35334             | 1.02                 | 4.0E-09                                       | T64942.1                 | EST_HUMAN                     | y411a07.s1 Soares_fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:86804 3'   |
| 11330                  | 24393                 | 38041             | 9.51                 | 4.0E-09                                       | A1896401.1               | EST_HUMAN                     | vim04f10.x1 NCI CGAP_U02 Homo sapiens cDNA clone IMAGE:2443827 3'   |
|                        |                       |                   |                      |   |                          |                               | z34a12.f1 Soares_NHIMPu_S1 Homo sapiens cDNA clone IMAGE:665278 5' similar to gb:U07807 DYNAMIN-1 (HUMAN);  |
| 11379                  | 24440                 |                   | 1.44                 | 4.0E-09                                       | AA186142.1               | EST_HUMAN                     | h009a09.x1 NCI CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3166120 3' similar to contains MER18.13  |
| 2427                   | 15565                 | 28682             | 4.51                 | 3.0E-09                                       | BE222239.1               | EST_HUMAN                     | MER18 repetitive element;   |
| 2816                   | 16742                 | 28858             | 1.05                 | 3.0E-09                                       | BE222239.1               | EST_HUMAN                     | h009a09.x1 NCI CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3166120 3' similar to contains MER18.13  |
| 2716                   | 16834                 | 28944             | 0.69                 | 3.0E-09                                       | P23249                   | SWISSPROT                     | MER18 repetitive element;   |
|                        |                       |                   |                      |   |                          |                               | PROTEIN MOV-10  |
| 3408                   | 16578                 | 29593             | 0.9                  | 3.0E-09                                       | BE222239.1               | EST_HUMAN                     | h009a09.x1 NCI CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3166120 3' similar to contains MER18.13  |
|                        |                       |                   |                      |   |                          |                               | MER18 repetitive element;   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 3484                   | 18331                 |                   | 0.7                  | 3.0E-09                                       | AA42272.1                | EST_HUMAN                     | z64804.r1 Scores_testis_NHT Homo sapiens cDNA clone IMAGE:767422 5'                                 |
| 4212                   | 17391                 |                   | 0.82                 | 3.0E-09                                       | X16874.1                 | NT                            | H.sapiens PADPRP-1 gene for NAD(+) ADP-ribosyltransferase   |
| 4548                   | 17694                 | 30668             | 3.47                 | 3.0E-09                                       | AF175325.1               | NT                            | Homo sapiens eukaryotic initiation factor 4A1 (EIF4A1) gene, partial cds                            |
| 4634                   | 17770                 | 30751             | 1.19                 | 3.0E-09                                       | Q973R5                   | SWISSPROT                     | 258.1 KDA PROTEIN C21ORF5 (KIAA0893)  |
| 8084                   | 21168                 | 34682             | 1.1                  | 3.0E-09                                       | BE465780.1               | EST_HUMAN                     | h080402.x1 NC1_CGAP_Kid11 Homo sapiens cDNA clone IMAGE:3194080 3' similar to TR-O55091             |
| 10453                  | 23498                 | 37096             | 1.87                 | 3.0E-09                                       | AL163247.2               | NT                            | O55091 IMPACT PROTEIN. ;  |
| 10782                  | 23825                 | 37448             | 0.46                 | 3.0E-09                                       | Q10940                   | SWISSPROT                     | Homo sapiens chromosome 21 segment HS21C047   |
| 11272                  | 24340                 | 37976             | 3.15                 | 3.0E-09                                       | BF109943.1               | EST_HUMAN                     | HYPOTHETICAL 13.1 KD PROTEIN B0310.4 IN CHROMOSOME X  |
| 11272                  | 24340                 | 37979             | 3.15                 | 3.0E-09                                       | BF109943.1               | EST_HUMAN                     | 7172x08.x1 Scores_NSF_F8_gw_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:3527030 3'                     |
| 835                    | 14013                 |                   | 0.88                 | 2.0E-09                                       | X16874.1                 | NT                            | 7172x08.x1 Scores_NSF_F8_gw_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:3527030 3'                     |
| 1287                   | 14443                 | 27511             | 4.7                  | 2.0E-09                                       | AL163284.2               | NT                            | H.sapiens PADPRP-1 gene for NAD(+) ADP-ribosyltransferase   |
| 1681                   | 14843                 |                   | 10.71                | 2.0E-09                                       | AL118573.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C084   |
| 2403                   | 15534                 | 28681             | 2.24                 | 2.0E-09                                       | Q973R5                   | SWISSPROT                     | DKFZp761B1710_r1 761 (synonym: hamy2) Homo sapiens cDNA clone DKFZp761B1710 5'                      |
| 4048                   | 17204                 | 30214             | 3.01                 | 2.0E-09                                       | O60241                   | SWISSPROT                     | 258.1 KDA PROTEIN C21ORF5 (KIAA0893)  |
| 4119                   | 17273                 | 30272             | 0.9                  | 2.0E-09                                       | AL263479.1               | EST_HUMAN                     | BRAIN-SPECIFIC ANGIOGENESIS INHIBITOR 2 PRECURSOR   |
| 5264                   | 18383                 | 31348             | 0.82                 | 2.0E-09                                       | M23161.1                 | NT                            | q07d09.x1 Scores_NHIMP_u_S1 Homo sapiens cDNA clone IMAGE:1855793 3'                                |
| 5837                   | 19027                 | 32333             | 0.87                 | 2.0E-09                                       | A004082.1                | EST_HUMAN                     | Human transposon-like element mRNA  |
| 6278                   | 19452                 |                   | 0.75                 | 2.0E-09                                       | AL163249.2               | NT                            | cd47b09.a1 Scores_testis_NHT Homo sapiens cDNA clone IMAGE:1619897 3'                               |
| 6919                   | 20234                 |                   | 0.88                 | 2.0E-09                                       | AA357407.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C049   |
| 7609                   | 20679                 | 34155             | 8.81                 | 2.0E-09                                       | AA461430.1               | EST_HUMAN                     | EST166142 Kidney IX Homo sapiens cDNA 5' end similar to EST containing L1 repeat                    |
| 7682                   | 20757                 | 34242             | 0.86                 | 2.0E-09                                       | W28834.1                 | EST_HUMAN                     | z653103.r1 Scores_total_fetus_Nb2Hf8_gw Homo sapiens cDNA clone IMAGE:766187 5' similar to contains |
| 7971                   | 21021                 | 34534             | 0.58                 | 2.0E-09                                       | AL243732.1               | EST_HUMAN                     | Alu repetitive element;   |
| 8909                   | 21988                 | 35528             | 1.2                  | 2.0E-09                                       | AJ271736.1               | NT                            | 52d11 Human retina cDNA randomly primed sublibrary Homo sapiens cDNA                                |
| 10824                  | 23957                 | 37480             | 0.85                 | 2.0E-09                                       | AV888942.1               | EST_HUMAN                     | q188g10.x1 Scores_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:1864114 3'                             |
| 12745                  | 14013                 |                   | 20.08                | 2.0E-09                                       | X16874.1                 | NT                            | Homo sapiens Xq pseudautosomal region; segment 1/2  |
| 12830                  | 26188                 |                   | 1.86                 | 2.0E-09                                       | AA226070.1               | EST_HUMAN                     | AV688842 GKX Homo sapiens cDNA clone GKACAC11 5'  |
| 1019                   | 14190                 |                   | 1.19                 | 1.0E-09                                       | W78152.1                 | EST_HUMAN                     | H.sapiens PADPRP-1 gene for NAD(+) ADP-ribosyltransferase   |
| 1133                   | 14298                 | 27353             | 1.43                 | 1.0E-09                                       | 5031624                  | NT                            | nc11c02.r1 NC1_CGAP_Py1 Homo sapiens cDNA clone IMAGE:1007810 similar to contains Alu repetitive    |
| 1133                   | 14298                 | 27354             | 1.43                 | 1.0E-09                                       | 5031624                  | NT                            | element;  |
|                        |                       |                   |                      |   |                          |                               | z678403.s1 Scores_fetal_heart_Nb1H19W Homo sapiens cDNA clone IMAGE:346863 3' similar to            |
|                        |                       |                   |                      |   |                          |                               | gbL02892 PEROXISOME PROLIFERATOR ACTIVATED RECEPTOR ALPHA (HUMAN);                                  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens CCAAT-box-binding transcription factor (CBF2) mRNA                                     |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens CCAAT-box-binding transcription factor (CBF2) mRNA                                     |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 2571                   | 15698                 |                   | 1.15                 | 1.0E-09                                       | AB56086.1                | EST_HUMAN                     | q64e11.x1 NCI_CGAP_Bm25 Homo sapiens cDNA clone IMAGE:2010812 3' similar to contains MIER12.12<br>MIER12 repetitive element;  |
| 2584                   | 16131                 | 28149             | 2.02                 | 1.0E-09                                       | U80017.1                 | NT                            | Homo sapiens basic transcription factor 2 p44 (btf2p44) gene, partial cds, neuronal apoptosis inhibitory<br>protein (napi) and survival motor neuron protein (smn) genes, complete cds      |
| 2592                   | 16168                 | 28184             | 6.17                 | 1.0E-09                                       | M28698.1                 | NT                            | Homo sapiens nucleolar phosphoprotein B23 (NPM1) mRNA, complete cds   |
| 2592                   | 16168                 | 28185             | 6.17                 | 1.0E-09                                       | M28698.1                 | NT                            | Homo sapiens nucleolar phosphoprotein B23 (NPM1) mRNA, complete cds   |
| 3103                   | 16278                 | 28283             | 0.99                 | 1.0E-09                                       | BE535440.1               | EST_HUMAN                     | Homo sapiens nucleolar phosphoprotein B23 (NPM1) mRNA, complete cds<br>501058602F1 NIH_MGC_10 Homo sapiens cDNA clone IMAGE:3445177 5'  |
| 4920                   | 18050                 |                   | 6.15                 | 1.0E-09                                       | AA719287.1               | EST_HUMAN                     | zh35k03.x1 Soares_pineaal_gland_NSHPG Homo sapiens cDNA clone IMAGE:414028 3' similar to contains<br>Alu repetitive element; contains element MER22 repetitive element;                     |
| 5341                   | 18454                 |                   | 0.8                  | 1.0E-09                                       | AA921958.1               | EST_HUMAN                     | cm44gt12.s1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:1543942 3'  |
| 5620                   | 18814                 | 31882             | 0.85                 | 1.0E-09                                       | AL163283.2               | NT                            | Homo sapiens chromosome 21 segment HS21C083   |
| 5952                   | 19138                 | 32454             | 1.28                 | 1.0E-09                                       | U07090.1                 | NT                            | Human breakpoint cluster region (BCR) gene, complete cds  |
| 6272                   | 19446                 | 32784             | 3.34                 | 1.0E-09                                       | P28684                   | SWISSPROT                     | CIRCUMSPOROZITE PROTEIN PRECURSOR (CS)  |
| 8594                   | 21665                 | 35206             | 0.92                 | 1.0E-09                                       | AI688474.1               | EST_HUMAN                     | wk39k05.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2330481 3' similar to contains<br>MER25.H1 MER25 repetitive element;   |
| 10620                  | 23555                 |                   | 2.72                 | 1.0E-09                                       | AL163283.2               | NT                            | Homo sapiens chromosome 21 segment HS21C083   |
| 12642                  | 26120                 | 31688             | 1.71                 | 1.0E-09                                       | 11418127                 | NT                            | Homo sapiens GTP binding protein 1 (GTPBP1), mRNA   |
| 12767                  | 25510                 |                   | 1.42                 | 1.0E-09                                       | T57366.1                 | EST_HUMAN                     | y551g12.s1 Streptococcus faecalis spleen (#637205) Homo sapiens cDNA clone IMAGE:74758 3'   |
| 13132                  | 26020                 |                   | 1.66                 | 1.0E-09                                       | AF260225.1               | NT                            | Homo sapiens TESTIN 2 and TESTIN 3 genes, complete cds, alternatively spliced   |
| 1337                   | 14484                 | 27584             | 1.52                 | 9.0E-10                                       | AW867740.1               | EST_HUMAN                     | MRO-SIN0040-050500-002-c07 SN0040 Homo sapiens cDNA   |
| 2585                   | 16074                 | 28092             | 3.74                 | 9.0E-10                                       | AI870071.1               | EST_HUMAN                     | w678k03.x1 Soares_Dieckgrafe_coton_NHCD Homo sapiens cDNA clone IMAGE:2347283 3' similar to<br>SW:RL29_HUMAN P47914 60S RIBOSOMAL PROTEIN L29 ; contains element P71R5 repetitive element ; |
| 6973                   | 20201                 | 33627             | 4.98                 | 9.0E-10                                       | AI452882.1               | EST_HUMAN                     | q48b09.x1 Soares_NSF_F8_9W_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:2144637 3' similar to<br>TR:O00372 O00372 PUTATIVE P160. ;  |
| 151                    | 13376                 | 28408             | 9.26                 | 8.0E-10                                       | U63630.2                 | NT                            | Homo sapiens MCM4 (MCM4) and DNA-PKcs (PRKDC) genes, partial cds  |
| 3423                   | 16592                 | 28607             | 0.86                 | 8.0E-10                                       | BE080748.1               | EST_HUMAN                     | QV1-B170631-150200-071-401 BT0631 Homo sapiens cDNA   |
| 4318                   | 17461                 | 30448             | 5.45                 | 8.0E-10                                       | AA376832.1               | EST_HUMAN                     | EST188564 Small intestine 1 Homo sapiens cDNA 5' end  |
| 10170                  | 23207                 |                   | 2.51                 | 8.0E-10                                       | U36306.2                 | NT                            | Homo sapiens lens major intrinsic protein (MIP) gene, complete cds  |
| 719                    | 13901                 | 28941             | 21.38                | 7.0E-10                                       | 7706225                  | NT                            | Homo sapiens TPA inducible protein (LOC51586), mRNA   |
| 719                    | 13901                 | 28942             | 21.38                | 7.0E-10                                       | 7706225                  | NT                            | Homo sapiens TPA inducible protein (LOC51586), mRNA   |
| 1681                   | 14804                 | 27880             | 2.98                 | 7.0E-10                                       | Q19342                   | SWISSPROT                     | LYSP100 PROTEIN (LYMPHOID-RESTRICTED HOMOLOG OF SP100)  |
| 2626                   | 15749                 |                   | 20.25                | 7.0E-10                                       | P08547                   | SWISSPROT                     | LINE-1 REVERSE TRANSCRIPTASE HOMOLOG  |
| 3167                   | 16332                 | 28941             | 2.25                 | 7.0E-10                                       | X00856.1                 | NT                            | H. sapiens DHFR gene, exon 3  |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 6314                   | 19488                 | 32841             | 4.06                 | 7.0E-10                                       | AA345220.1               | EST_HUMAN                     | EST161247 Gall bladder II Homo sapiens cDNA 5' end  |
| 7574                   | 20849                 | 34124             | 1.37                 | 7.0E-10                                       | BF352883.1               | EST_HUMAN                     | IL3-HT0619-110700-208-D12 HT0619 Homo sapiens cDNA  |
| 7834                   | 20889                 |                   | 1.85                 | 7.0E-10                                       | P35084                   | SWISSPROT                     | DNA-DIRECTED RNA POLYMERASE II LARGEST SUBUNIT  |
| 8163                   | 21245                 | 34764             | 1.54                 | 7.0E-10                                       | AF029701.2               | NT                            | Homo sapiens presenilin-1 gene, exons 1 and 2   |
| 8163                   | 21245                 | 34765             | 1.54                 | 7.0E-10                                       | AF029701.2               | NT                            | Homo sapiens presenilin-1 gene, exons 1 and 2   |
| 936                    | 14111                 | 27171             | 8.44                 | 6.0E-10                                       | AJ400877.1               | NT                            | Homo sapiens ASCL3 gene, CEGP1 gene, C11orf14 gene, C11orf15 gene, C11orf16 gene and C11orf17 gene  |
| 2742                   | 16889                 | 28971             | 1.63                 | 6.0E-10                                       | A424405.1                | EST_HUMAN                     | LOC2407.X1 NCL CGAP_P28 Homo sapiens cDNA clone IMAGE:2085021 3'  |
| 4615                   | 17752                 | 30733             | 1.88                 | 6.0E-10                                       | Q02817                   | SWISSPROT                     | MUCIN 2 PRECURSOR (INTESTINAL MUCIN 2)  |
| 4881                   | 17894                 |                   | 3.15                 | 6.0E-10                                       | AW853719.1               | EST_HUMAN                     | RC3-CT0284-031099-012-g12 CT0284 Homo sapiens cDNA  |
| 8983                   | 22082                 | 35602             | 0.96                 | 6.0E-10                                       | P33730                   | SWISSPROT                     | E-SELECTIN PRECURSOR (ENDOTHELIAL LEUKOCYTE ADHESION MOLECULE 1) (ELAM-1)   |
| 8983                   | 22082                 | 35603             | 0.96                 | 6.0E-10                                       | P33730                   | SWISSPROT                     | (LEUKOCYTE-ENDOTHELIAL CELL ADHESION MOLECULE 2) (LECAM2) (CD62E)   |
| 8984                   | 22874                 | 36458             | 0.48                 | 6.0E-10                                       | P88073                   | SWISSPROT                     | E-SELECTIN PRECURSOR (ENDOTHELIAL LEUKOCYTE ADHESION MOLECULE 1) (ELAM-1)   |
| 12223                  | 25172                 |                   | 1.95                 | 6.0E-10                                       | AW971923.1               | EST_HUMAN                     | (LEUKOCYTE-ENDOTHELIAL CELL ADHESION MOLECULE 2) (LECAM2) (CD62E)   |
| 780                    | 13960                 |                   | 5.29                 | 5.0E-10                                       | AL046804.1               | EST_HUMAN                     | ENTEROPEPTIDASE PRECURSOR (ENTEROKINASE)  |
| 3564                   | 16729                 | 29745             | 1.14                 | 5.0E-10                                       | Q01033                   | SWISSPROT                     | EST384012 MAGe resequences, MAGL Homo sapiens cDNA  |
| 5105                   | 18233                 | 31202             | 1.4                  | 6.0E-10                                       | AF181887.1               | NT                            | DKFZp434N219.1 434 (synonym: hies3) Homo sapiens cDNA clone DKFZp434N219 5'   |
| 7475                   | 20550                 |                   | 1.85                 | 5.0E-10                                       | BF105159.1               | EST_HUMAN                     | HYPOTHETICAL GENE 48 PROTEIN  |
| 9736                   | 22801                 | 36374             | 2.24                 | 5.0E-10                                       | P34678                   | SWISSPROT                     | Homo sapiens WRN (WRN) gene, complete cds   |
| 9736                   | 22801                 | 36375             | 2.24                 | 5.0E-10                                       | P34678                   | SWISSPROT                     | 601822184F1 NIH_MGC_75 Homo sapiens cDNA clone IMAGE:4042413 5'   |
|                        |                       |                   |                      |   |                          |                               | HYPOTHETICAL 67.9 KD PROTEIN ZK688.8 IN CHROMOSOME III  |
|                        |                       |                   |                      |   |                          |                               | HYPOTHETICAL 67.9 KD PROTEIN ZK688.8 IN CHROMOSOME III  |
| 12040                  | 25021                 | 38725             | 1.31                 | 5.0E-10                                       | AF091415.1               | NT                            | Maceoa tonkeana isolate 583000000 NADH dehydrogenase subunit 4L gene, complete cds; and NADH dehydrogenase subunit 4 gene, mitochondrial genes encoding mitochondrial proteins, partial cds |
| 114                    | 13345                 |                   | 1.09                 | 4.0E-10                                       | AJ221083.1               | EST_HUMAN                     | cg09009.x1 Soares_placenta_806weeks_ZNtHP8t:6W Homo sapiens cDNA clone IMAGE:1759049 3' similar to contains LTRb2 LTR8 repetitive element;  |
| 2062                   | 15183                 | 28306             | 1.4                  | 4.0E-10                                       | AW594709.1               | EST_HUMAN                     | hg55g03.x1 NCL CGAP_G08 Homo sapiens cDNA clone IMAGE:2048944 3' similar to contains Alu repetitive element;  |
| 2840                   | 15763                 | 28877             | 6.79                 | 4.0E-10                                       | AL163303.2               | NT                            | Homo sapiens chromosome 21 segment HS21C103   |
| 7327                   | 20406                 | 33871             | 17.76                | 4.0E-10                                       | AF224689.1               | NT                            | Homo sapiens chromosome 21 segment HS21C103   |
| 10398                  | 23433                 | 37039             | 0.71                 | 4.0E-10                                       | AW293243.1               | EST_HUMAN                     | (UBE2D3) genes, complete cds  |
| 10682                  | 23696                 | 37305             | 1.12                 | 4.0E-10                                       | AJ267342.1               | EST_HUMAN                     | UIH-B12-eH-e-07-QUL51 NCL CGAP_Sub4 Homo sapiens cDNA clone IMAGE:2727061 3'  |
|                        |                       |                   |                      |   |                          | EST_HUMAN                     | eq63h11.x1 Stanley Frontal SN pool 2 Homo sapiens cDNA clone IMAGE:2035653  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 10794                  | 23827                 | 37450             | 0.54                 | 4.0E-10                                       | BE169208.1               | EST_HUMAN                     | PM1-HT0521-120200-001-108 HT0521 Homo sapiens cDNA   |
| 10794                  | 23827                 | 37451             | 0.54                 | 4.0E-10                                       | BE169208.1               | EST_HUMAN                     | PM1-HT0521-120200-001-108 HT0521 Homo sapiens cDNA   |
| 838                    | 14112                 | 27173             | 2.24                 | 3.0E-10                                       | N38113.1                 | EST_HUMAN                     | y63206.s1 Soares melanocyte 2N1H1M Homo sapiens cDNA clone IMAGE:272963 3' similar to contains L1.t1 L1 repetitive element:  |
| 1382                   | 14537                 |                   | 5.3                  | 3.0E-10                                       | AY005150.1               | NT                            | Homo sapiens extracellular glycoprotein lactoferrin precursor, gene, complete cds  |
| 4657                   | 17763                 | 30777             | 0.94                 | 3.0E-10                                       | AL163203.2               | NT                            | Homo sapiens chromosome 21 segment HS21C003  |
| 4657                   | 17763                 | 30778             | 0.94                 | 3.0E-10                                       | AL163203.2               | NT                            | Homo sapiens chromosome 21 segment HS21C003  |
| 6360                   | 18463                 | 31428             | 0.89                 | 3.0E-10                                       | AL163203.2               | NT                            | Homo sapiens chromosome 21 segment HS21C003  |
| 5571                   | 18767                 | 31808             | 0.78                 | 3.0E-10                                       | N50109.1                 | EST_HUMAN                     | Human XRCO1 DNA repair gene, genomic   |
| 6332                   | 19503                 | 32861             | 2.06                 | 3.0E-10                                       | P20360                   | SWISSPROT                     | Y21108.s1 Soares multiple sclerosis 2N1H1MSP Homo sapiens cDNA clone IMAGE:282782 3'   |
| 6481                   | 18048                 | 33010             | 3.82                 | 3.0E-10                                       | BE302870.1               | EST_HUMAN                     | RHOMBOLD PROTEIN (VEINLET PROTEIN)   |
| 7337                   | 20367                 | 34495             | 1.42                 | 3.0E-10                                       | AV743302.1               | EST_HUMAN                     | ba76d03.y1 NIH_MGC_20 Homo sapiens cDNA clone IMAGE:2806319 5'   |
| 7337                   | 20367                 | 34496             | 1.42                 | 3.0E-10                                       | AV743302.1               | EST_HUMAN                     | AV743302 CB Homo sapiens cDNA clone CBFBDG08 5'  |
| 8928                   | 22007                 | 36548             | 1.57                 | 3.0E-10                                       | H87208.1                 | EST_HUMAN                     | ye74b12.s1 Soares retina N2b-4HR Homo sapiens cDNA clone IMAGE:220611 3' similar to contains MER28 repetitive element:   |
| 9249                   | 22326                 | 36872             | 1.52                 | 3.0E-10                                       | AW860731.1               | EST_HUMAN                     | IL3-CT0219-180200-064-B08 CT0219 Homo sapiens cDNA   |
| 9249                   | 22326                 | 36873             | 1.52                 | 3.0E-10                                       | AW860731.1               | EST_HUMAN                     | IL3-CT0219-180200-064-B08 CT0219 Homo sapiens cDNA   |
| 9541                   | 22606                 |                   | 0.78                 | 3.0E-10                                       | AF020503.1               | NT                            | Homo sapiens FRA3B common fragile region, diadenosine triphosphate hydrolase (FHT) gene, exon 5  |
| 10878                  | 23713                 |                   | 1.95                 | 3.0E-10                                       | T65891.1                 | EST_HUMAN                     | yc11e12.f1 Stratagene lung (#637210) Homo sapiens cDNA clone IMAGE:30398 5'  |
| 10820                  | 23833                 |                   | 0.86                 | 3.0E-10                                       | AA766294.1               | EST_HUMAN                     | rz38g03.s1 NC1_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:1288908 3'  |
| 12941                  | 25619                 | 31977             | 1.87                 | 3.0E-10                                       | BE175617.1               | EST_HUMAN                     | IL3-HT0618-110500-138-E07 HT0618 Homo sapiens cDNA   |
| 36                     | 13274                 | 26278             | 2.08                 | 2.0E-10                                       | P48988                   | SWISSPROT                     | MAJOR CENTROMERE AUTOANTIGEN B (CENTROMERE PROTEIN B) (CENP-B)   |
| 36                     | 13274                 | 26278             | 2.08                 | 2.0E-10                                       | P48988                   | SWISSPROT                     | MAJOR CENTROMERE AUTOANTIGEN B (CENTROMERE PROTEIN B) (CENP-B)   |
| 1048                   | 15089                 |                   | 1.66                 | 2.0E-10                                       | U80017.1                 | NT                            | Homo sapiens basic transcription factor 2 p44 (btf2p44) gene, partial cds, neuronal apoptosis inhibitory protein (nrip) and survival motor neuron protein (smn) genes, complete cds  |
| 3051                   | 16227                 |                   | 0.84                 | 2.0E-10                                       | BF675047.1               | EST_HUMAN                     | 602136640F1 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:4273377 5'  |
| 5824                   | 19111                 |                   | 2.3                  | 2.0E-10                                       | Q28640                   | SWISSPROT                     | (IFRG)   |
| 6380                   | 19549                 | 32905             | 1.56                 | 2.0E-10                                       | AF280107.1               | NT                            | Homo sapiens cytochrome P450 polypeptide 43 (CYP3A43) gene, partial cds; cytochrome P450 polypeptide 4 (CYP3A4) and cytochrome P450 polypeptide 7 (CYP3A7) genes, complete cds; and cytochrome P450 polypeptide 5 (CYP3A5) gene, partial cds |
| 7337                   | 20610                 | 34084             | 6.41                 | 2.0E-10                                       | BE791082.1               | EST_HUMAN                     | 601686208F1 NIH_MGC_7 Homo sapiens cDNA clone IMAGE:3940824 5'   |
| 8203                   | 21285                 | 34807             | 0.58                 | 2.0E-10                                       | P26809                   | SWISSPROT                     | POLYPROTEIN [CONTAINS: PROTEASE; REVERSE TRANSCRIPTASE; RIBONUCLEASE H I]  |
| 8203                   | 21285                 | 34808             | 0.58                 | 2.0E-10                                       | P26809                   | SWISSPROT                     | POLYPROTEIN [CONTAINS: PROTEASE; REVERSE TRANSCRIPTASE; RIBONUCLEASE H I]  |

Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 8502                   | 22558                 |                   | 1.06                 | 2.0E-10                                       | BF434565.1               | EST_HUMAN                     | 7c78c08.x1 NCL_CGAP_Kid111 Homo sapiens cDNA clone IMAGE:3642303 3' similar to contains L1.13 L1<br>repetitive element;   |
| 11609                  | 24682                 |                   | 1.33                 | 2.0E-10                                       | A1882153.1               | EST_HUMAN                     | la10f12.x1 Scores total fetus NE2-1F8 9w Homo sapiens cDNA clone IMAGE:2043695 3'   |
| 1638                   | 14691                 |                   | 3.09                 | 1.0E-10                                       | AW867767.1               | EST_HUMAN                     | MRO-SN0038-280300-001-001 SN0038 Homo sapiens cDNA  |
| 1037                   | 14769                 | 27674             | 3.37                 | 1.0E-10                                       | AV652123.1               | EST_HUMAN                     | AV652123 GLC Homo sapiens cDNA clone GLCCXA11 3'  |
| 2049                   | 15772                 |                   | 2.16                 | 1.0E-10                                       | AW652001.1               | EST_HUMAN                     | QV0-CT0225-191199-058-608 CT0225 Homo sapiens cDNA  |
| 3589                   | 16763                 | 29768             | 0.9                  | 1.0E-10                                       | AW832912.1               | EST_HUMAN                     | QV2-TT0003-181199-019-g10 TT0003 Homo sapiens cDNA  |
| 3929                   | 16793                 |                   | 0.87                 | 1.0E-10                                       | AL041685.1               | EST_HUMAN                     | DKFZp434N1317_1 434 (synonym: hies3) Homo sapiens cDNA clone DKFZp434N1317 5'   |
| 3947                   | 16793                 |                   | 0.78                 | 1.0E-10                                       | AL041685.1               | EST_HUMAN                     | DKFZp434N1317_1 434 (synonym: hies3) Homo sapiens cDNA clone DKFZp434N1317 5'   |
| 4123                   | 17277                 |                   | 7.93                 | 1.0E-10                                       | AF213884.1               | NT                            | Homo sapiens nuclear factor of kappa light polypeptide gene enhancer in B-cells 1 (NFKB1) gene, complete cds  |
| 4245                   | 17391                 | 30378             | 18.24                | 1.0E-10                                       | U52111.2                 | NT                            | Homo sapiens X28 region near ALD locus containing dual specificity phosphatase 9 (DUSP9), ribosomal protein L18a (RPL18a), Ca2+/Calmodulin-dependent protein kinase I (CAMKI), creatine transporter (CRTR), GDM protein (GDM), adrenoleukodystrophy protein > |
| 4245                   | 17391                 | 30379             | 18.24                | 1.0E-10                                       | U52111.2                 | NT                            | Homo sapiens X28 region near ALD locus containing dual specificity phosphatase 9 (DUSP9), ribosomal protein L18a (RPL18a), Ca2+/Calmodulin-dependent protein kinase I (CAMKI), creatine transporter (CRTR), GDM protein (GDM), adrenoleukodystrophy protein > |
| 4253                   | 17399                 | 30388             | 1.78                 | 1.0E-10                                       | AB031069.1               | NT                            | Homo sapiens PCCX1 mRNA for protein containing CXXC domain 1, complete cds  |
| 4285                   | 17430                 |                   | 2.28                 | 1.0E-10                                       | M30629.1                 | NT                            | Homo pregnancy-specific glycoprotein beta-1 (SP1) mRNA, last exon   |
| 5277                   | 18396                 |                   | 1.01                 | 1.0E-10                                       | AI797745.1               | EST_HUMAN                     | Homo sapiens PCCX1 mRNA for protein containing CXXC domain 1, complete cds  |
| 7044                   | 20713                 |                   | 0.59                 | 1.0E-10                                       | P08549                   | SWISSPROT                     | we82f04.x1 Scores_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2347815 3' similar to contains<br>MER31.1 MER31 repetitive element;  |
| 7880                   | 20914                 | 34419             | 0.89                 | 1.0E-10                                       | AU128594.1               | EST_HUMAN                     | LINE-1 REVERSE TRANSCRIPTASE HOMOLOG  |
| 8434                   | 21515                 | 35046             | 1.14                 | 1.0E-10                                       | AW408990.1               | EST_HUMAN                     | AU128594 NT2RP2 Homo sapiens cDNA clone NT2RP2003761 5'   |
| 8855                   | 21934                 |                   | 1.82                 | 1.0E-10                                       | A1268340.1               | EST_HUMAN                     | fb 6A4 Fetal brain library Homo sapiens cDNA<br>qtm04610.x1 NCL_CGAP_Lus Homo sapiens cDNA clone IMAGE:1880874 3' similar to contains L1.11 L1<br>repetitive element;   |
| 10408                  | 23441                 |                   | 6.24                 | 1.0E-10                                       | AA081888.1               | EST_HUMAN                     | zn28g08.r1 Stratagene neuroepithelium NT2RAM1 937234 Homo sapiens cDNA clone IMAGE:548314 5'  |
| 11154                  | 24225                 | 37854             | 3.5                  | 1.0E-10                                       | A038280.1                | EST_HUMAN                     | cy65h03.x1 Scores_fetal_liver spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:1672681 3'  |
| 12165                  | 18503                 |                   | 1.8                  | 1.0E-10                                       | X87344.1                 | NT                            | HL-sapiens DMA, DMB, HLA-Z1, IFF2, LMP2, TAP1, LMP7, TAP2, DOB, DOB2 and RING8, 9, 13 and 14<br>genes   |
| 272                    | 13480                 | 26521             | 0.87                 | 9.0E-11                                       | BE145690.1               | EST_HUMAN                     | IL2-IT0203-291098-019-c08 HT0203 Homo sapiens cDNA  |
| 2171                   | 15306                 | 28433             | 6.02                 | 9.0E-11                                       | AL134395.1               | EST_HUMAN                     | DKFZp547D225_1 547 (synonym: hibr1) Homo sapiens cDNA clone DKFZp547D225 5'   |
| 2171                   | 15306                 | 28434             | 6.02                 | 9.0E-11                                       | AL134395.1               | EST_HUMAN                     | DKFZp547D225_1 547 (synonym: hibr1) Homo sapiens cDNA clone DKFZp547D225 5'   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 3470                   | 16637                 | 28657             | 2.98                 | 9.0E-11                                       | AL134396.1               | EST_HUMAN                     | DKFZp547D225_r1 547 (synonym: hfrb1) Homo sapiens cDNA clone DKFZp547D225 5'  |
| 3470                   | 16637                 | 28658             | 2.98                 | 9.0E-11                                       | AL134396.1               | EST_HUMAN                     | DKFZp547D225_r1 547 (synonym: hfrb1) Homo sapiens cDNA clone DKFZp547D225 5'  |
| 4622                   | 17759                 | 30741             | 0.8                  | 9.0E-11                                       | AA778985.1               | EST_HUMAN                     | aa78901.s1 Strategene echizo brain S11 Homo sapiens cDNA clone IMAGE:070287 3'  |
| 5692                   | 18888                 |                   | 3.05                 | 9.0E-11                                       | BE079780.1               | EST_HUMAN                     | RC6-BT0827-140200-011-E08 BT0827 Homo sapiens cDNA  |
| 10357                  | 23392                 | 37002             | 1.17                 | 9.0E-11                                       | AA324980.1               | EST_HUMAN                     | ESTZ7872 Cerebellum II Homo sapiens cDNA 5' end   |
| 10357                  | 23392                 | 37003             | 1.17                 | 9.0E-11                                       | AA324980.1               | EST_HUMAN                     | ESTZ7872 Cerebellum II Homo sapiens cDNA 5' end   |
| 12558                  | 25378                 | 32072             | 2.45                 | 9.0E-11                                       | C16635.1                 | EST_HUMAN                     | C16635 Clontech human acrla polyA+ mRNA (#6672) Homo sapiens cDNA clone GEN-606808 5'                                       |
| 3185                   | 16360                 |                   | 10.53                | 8.0E-11                                       | H18971.1                 | EST_HUMAN                     | Yns3f11.s1 Soares adult brain N2b5f1B55Y Homo sapiens cDNA clone IMAGE:172173 3' similar to contains L1 repetitive element; |
| 4154                   | 17306                 | 30300             | 5.37                 | 8.0E-11                                       | N23712.1                 | EST_HUMAN                     | Yw4e08.s1 Wetzmann Olfactory Epithelium Homo sapiens cDNA clone IMAGE:255298 3'   |
| 5913                   | 19101                 | 32416             | 0.66                 | 8.0E-11                                       | AW674918.1               | EST_HUMAN                     | ba6004.x1 NIH_MGC_10 Homo sapiens cDNA clone IMAGE:2900882 3'   |
| 6811                   | 19905                 |                   | 0.62                 | 8.0E-11                                       | AW166158.1               | EST_HUMAN                     | Xf45h11.x1 NCI_CGAP_Brm50 Homo sapiens cDNA clone IMAGE:2621061 3' similar to contains MER10.11 MER10 repetitive element;   |
| 1478                   | 14632                 | 27717             | 2.09                 | 7.0E-11                                       | AA330642.1               | EST_HUMAN                     | EST94392 Embryo, 6 week I Homo sapiens cDNA 5' end  |
| 8685                   | 21776                 | 35307             | 2.61                 | 7.0E-11                                       | AF163884.1               | NT                            | Homo sapiens SNCA isoform (SNCA) gene, complete cds, alternatively spliced  |
| 10434                  | 23469                 |                   | 1.37                 | 7.0E-11                                       | P11369                   | SWISSPROT                     | RETROVIRUS-RELATED POLYPROTEIN [CONTAINS: REVERSE TRANSCRIPTASE ;   |
| 426                    | 13620                 | 26887             | 6.19                 | 8.0E-11                                       | M55270.1                 | NT                            | ENDONUCLEASE  |
| 426                    | 13620                 | 26882             | 6.19                 | 8.0E-11                                       | M55270.1                 | NT                            | Human matrix Gla protein (MGF) gene, complete cds   |
| 6882                   | 20014                 | 33424             | 0.91                 | 6.0E-11                                       | L44140.1                 | NT                            | Human matrix Gla protein (MGF) gene, complete cds   |
| 7870                   | 20924                 | 34431             | 3.6                  | 6.0E-11                                       | P08547                   | SWISSPROT                     | Homo sapiens chromosome X region from filamin (FLN) gene to glucose-6-phosphate dehydrogenase (G6PD) gene, complete cds's   |
| 8559                   | 21840                 | 33179             | 6.99                 | 6.0E-11                                       | AV727850.1               | EST_HUMAN                     | LINE-1 REVERSE TRANSCRIPTASE HOMOLOG  |
| 6514                   | 22579                 | 36145             | 0.5                  | 6.0E-11                                       | BE063509.1               | EST_HUMAN                     | AV727850 HTC Homo sapiens cDNA clone HTCASC06 5'  |
| 12                     | 13250                 | 26250             | 1                    | 5.0E-11                                       | AL163283.2               | NT                            | CM6-BT0281-031198-087-a03 BT0281 Homo sapiens cDNA  |
| 3450                   | 13250                 | 26250             | 1.24                 | 5.0E-11                                       | AL163283.2               | NT                            | Homo sapiens chromosome 21 segment HS21C083   |
| 6545                   | 18804                 | 33181             | 1.92                 | 5.0E-11                                       | AL163213.2               | NT                            | Homo sapiens chromosome 21 segment HS21C083   |
| 7899                   | 20764                 | 34248             | 11.57                | 6.0E-11                                       | 11416709                 | NT                            | Homo sapiens chromosome 21 segment HS21C013   |
| 1433                   | 14566                 |                   | 1.38                 | 4.0E-11                                       | AA496042.1               | EST_HUMAN                     | Homo sapiens protocadherin beta 3 (PCDH3), mRNA   |
| 2851                   | 15865                 | 29074             | 9.94                 | 4.0E-11                                       | BE585600.1               | EST_HUMAN                     | aa01b12.r1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:730559 5'  |
| 3034                   | 16210                 | 29233             | 1.26                 | 4.0E-11                                       | AL163247.2               | NT                            | 601507631F1 NIH_MGC_71 Homo sapiens cDNA clone IMAGE:3908285 5'   |
| 4740                   | 17875                 | 30858             | 0.81                 | 4.0E-11                                       | D44668.1                 | EST_HUMAN                     | HUMSUJPY069 Human brain cDNA Homo sapiens cDNA clone 069  |
| 6805                   | 19768                 | 33164             | 3.29                 | 4.0E-11                                       | P20085                   | SWISSPROT                     | PRE-MRNA SPLICING FACTOR RNA HELICASE PRP2  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 7141                   | 20276                 | 33718             | 0.82                 | 4.0E-11                                       | AA442630.1               | EST_HUMAN                     | z66f10.1 Soares_testis_NHT: Homo sapiens cDNA clone IMAGE:757863 5' similar to TR: 1055250<br>G1055250 PHEROMONE RECEPTOR VN4.;   |
| 7332                   | 20606                 |                   | 3.68                 | 4.0E-11                                       | AF224689.1               | NT                            | Homo sapiens marinosidase, beta A, lysosomal (MANBA) gene, and ubiquitin-conjugating enzyme E2D 3<br>(UBE2D3) genes, complete cds   |
| 9595                   | 22850                 |                   | 1.56                 | 4.0E-11                                       | BE149425.1               | EST_HUMAN                     | RC1-HT0258-210700-073-008 HT0258 Homo sapiens cDNA<br>183g12.x1 NCI_CGAP_Brt23 Homo sapiens cDNA clone IMAGE:2105630 3' similar to WP-ZK353.1<br>CE00388;                     |
| 9882                   | 22902                 | 36487             | 0.79                 | 4.0E-11                                       | A1609793.1               | EST_HUMAN                     | MR0-GN0024-180900-008-H09 GN0024 Homo sapiens cDNA  |
| 10698                  | 23892                 | 37513             | 0.84                 | 4.0E-11                                       | BF367283.1               | EST_HUMAN                     | Homo sapiens SH3-domain binding protein 1 (SH3BP1), mRNA  |
| 12794                  | 25530                 | 32008             | 1.71                 | 4.0E-11                                       | 11945732                 | NT                            | Mus musculus expressed in non-metastatic cells 2, protein (NM23B) (Nme2), mRNA  |
| 1521                   | 14674                 | 27768             | 4                    | 3.0E-11                                       | 6878077                  | NT                            | EST180120 Liver, hepatocellular carcinoma Homo sapiens cDNA 5' end  |
| 4397                   | 17534                 |                   | 1.35                 | 3.0E-11                                       | AA308248.1               | EST_HUMAN                     | q38c04.x1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:1752102 3' similar to contains MER10.13<br>MER10 repetitive element;  |
| 982                    | 14165                 | 27215             | 1.43                 | 2.0E-11                                       | A1160502.1               | EST_HUMAN                     | Yg43e12.1 Soares Infant brain INIB Homo sapiens cDNA clone IMAGE:35144 5'   |
| 1212                   | 14379                 | 27434             | 20.98                | 2.0E-11                                       | R24807.1                 | EST_HUMAN                     | Yg43e12.1 Soares Infant brain INIB Homo sapiens cDNA clone IMAGE:35144 5'   |
| 1212                   | 14379                 | 27435             | 20.98                | 2.0E-11                                       | R24807.1                 | EST_HUMAN                     | Gallus gallus rho-globin, beta-H globin, beta-A globin, epsilon-globin, and olfactory receptor-like protein<br>COR3 beta (COR3'beta) genes, complete cds                      |
| 1844                   | 14798                 | 27880             | 4.44                 | 2.0E-11                                       | L17432.1                 | NT                            | Gallus gallus rho-globin, beta-H globin, beta-A globin, epsilon-globin, and olfactory receptor-like protein<br>COR3 beta (COR3'beta) genes, complete cds                      |
| 1844                   | 14796                 | 27881             | 4.44                 | 2.0E-11                                       | L17432.1                 | NT                            | Human endogenous retrovirus HERV-P-T47D   |
| 2823                   | 15937                 | 29047             | 1.09                 | 2.0E-11                                       | AF087913.1               | NT                            | RETROVIRUS-RELATED GAG POLYPROTEIN (VERSION 1)  |
| 3266                   | 16440                 | 29461             | 5.56                 | 2.0E-11                                       | P10283                   | SWISSPROT                     | tm54c09.x1 NCI_CGAP_Krt11 Homo sapiens cDNA clone IMAGE:2161936 3'  |
| 3403                   | 16573                 | 29588             | 0.82                 | 2.0E-11                                       | A1478617.1               | EST_HUMAN                     | POLYPEPTIDE N-ACETYL GALACTOSAMINYLTRANSFERASE (PROTEIN-UDP<br>ACETYL GALACTOSAMINYLTRANSFERASE) (UDP-GALNA6-POLYPEPTIDE, N-<br>ACETYL GALACTOSAMINYLTRANSFERASE) (GALNA6-T1) |
| 3448                   | 16618                 | 29634             | 0.67                 | 2.0E-11                                       | Q10473                   | SWISSPROT                     | Homo sapiens FRA3B common fragile region, deoxynucleoside triphosphate hydrolase (FRA3B) gene, exon 5<br>FRIEND VIRUS SUSCEPTIBILITY PROTEIN 1                                |
| 3596                   | 16760                 |                   | 1.01                 | 2.0E-11                                       | AF020508.1               | NT                            | RC3-BT0316-170200-014-005 BT0316 Homo sapiens cDNA  |
| 3797                   | 16958                 | 29892             | 0.64                 | 2.0E-11                                       | P70213                   | SWISSPROT                     | Homo sapiens chromosome 21 segment HS21C027   |
| 4596                   | 17704                 |                   | 1.07                 | 2.0E-11                                       | BE065537.1               | EST_HUMAN                     | QV2-BT0258-281099-014-001 BT0258 Homo sapiens cDNA  |
| 4728                   | 17863                 |                   | 0.8                  | 2.0E-11                                       | AL103227.2               | NT                            | EST178228 Colon carcinoma (HCC) cell line Homo sapiens cDNA 5' end similar to similar to alpha-2-<br>macroglobulin  |
| 5051                   | 18179                 |                   | 1.85                 | 2.0E-11                                       | BE082558.1               | EST_HUMAN                     | QV2-P10073-280300-109-H08 PT0073 Homo sapiens cDNA  |
| 5142                   | 18285                 | 31234             | 0.82                 | 2.0E-11                                       | AA307331.1               | EST_HUMAN                     |   |
| 6263                   | 19437                 | 32794             | 1.23                 | 2.0E-11                                       | AW877808.1               | EST_HUMAN                     |   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 6440                   | 19607                 | 32970             | 2                    | 2.0E-11                                       | AA581028.1               | EST_HUMAN                     | nc83h05.l1 NCL_CGAP_GC1 Homo sapiens cDNA clone IMAGE:797433 5' similar to SW PR16_YEAST                |
| 7245                   | 20425                 | 33888             | 0.85                 | 2.0E-11                                       | BF592845.1               | EST_HUMAN                     | P15938 PRE-MRNA SPLICING FACTOR RNA HELICASE PRP16 ;  |
| 8068                   | 21148                 |                   | 0.89                 | 2.0E-11                                       | P37072                   | SWISSPROT                     | 767c03.x1 NCL_CGAP_G08 Homo sapiens cDNA clone IMAGE:3442565 3'   |
|                        |                       |                   |                      |   |                          |                               | OLFACTORY RECEPTOR-LIKE PROTEIN COR6  |
| 9424                   | 22498                 |                   | 1.39                 | 2.0E-11                                       | AF028308.1               | NT                            | Homo sapiens chromosome 9 duplication of the T cell receptor beta locus and tyrosinogen gene families   |
| 10491                  | 23626                 | 37135             | 5.13                 | 2.0E-11                                       | Q13608                   | SWISSPROT                     | OLFACTORY RECEPTOR 611 (OLFACTORY RECEPTOR-LIKE PROTEIN OLF1)   |
| 10734                  | 23767                 | 37376             | 1.08                 | 2.0E-11                                       | AW885874.1               | EST_HUMAN                     | RC4-OT0072-170400-013-c11 OT0072 Homo sapiens cDNA  |
| 10734                  | 23767                 | 37377             | 1.09                 | 2.0E-11                                       | AW885874.1               | EST_HUMAN                     | RC4-OT0072-170400-013-c11 OT0072 Homo sapiens cDNA  |
| 11375                  | 24436                 | 38094             | 1.84                 | 2.0E-11                                       | AA035369.1               | EST_HUMAN                     | 2k27g02.s1 Soares_pregnant_uterus_NbHPU Homo sapiens cDNA clone IMAGE:471784 3'                         |
| 11375                  | 24436                 | 38095             | 1.84                 | 2.0E-11                                       | AA035369.1               | EST_HUMAN                     | 2k27g02.s1 Soares_pregnant_uterus_NbHPU Homo sapiens cDNA clone IMAGE:471784 3'                         |
| 11408                  | 24469                 | 38133             | 1.4                  | 2.0E-11                                       | AA281856.1               | EST_HUMAN                     | 2s1804.l1 NCL_CGAP_G081 Homo sapiens cDNA clone IMAGE:685519 5'   |
| 12122                  | 25102                 | 38807             | 12.19                | 2.0E-11                                       | AL163278.2               | NT                            | Homo sapiens chromosome 21 segment HS21C078   |
| 12297                  | 26105                 |                   | 1.85                 | 2.0E-11                                       | AA704195.1               | EST_HUMAN                     | 2f77e03.s1 Soares_fetal_liver_spleen_INF1L5_S1 Homo sapiens cDNA clone IMAGE:460824 3'                  |
| 12328                  | 26237                 |                   | 1.44                 | 2.0E-11                                       | AW842143.1               | EST_HUMAN                     | RC0-CN0027-210100-011-c01 CN0027 Homo sapiens cDNA  |
| 12354                  | 26259                 | 32115             | 2.15                 | 2.0E-11                                       | BF377869.1               | EST_HUMAN                     | CM2-TN0140-070900-372-g01 TN0140 Homo sapiens cDNA  |
| 12641                  | 25431                 |                   | 1.43                 | 2.0E-11                                       | D25217.2                 | NT                            | Homo sapiens mRNA for KIAA0027 protein, partial cds   |
| 12813                  | 25542                 |                   | 3.82                 | 2.0E-11                                       | P08547                   | SWISSPROT                     | LINE-1 REVERSE TRANSCRIPTASE HOMOLOG  |
| 13180                  | 25767                 |                   | 2.5                  | 2.0E-11                                       | 11417868                 | NT                            | Homo sapiens SEG14 (S. cerevisiae)-like 2 (SEC14L2), mRNA   |
| 683                    | 13876                 | 26909             | 1.57                 | 1.0E-11                                       | AJ131016.1               | NT                            | Homo sapiens SCL gene locus   |
| 806                    | 13986                 | 27038             | 1.72                 | 1.0E-11                                       | AL163209.2               | NT                            | Homo sapiens chromosome 21 segment HS21C009   |
| 1244                   | 14403                 | 27484             | 2.81                 | 1.0E-11                                       | AL163279.2               | NT                            | Homo sapiens chromosome 21 segment HS21C078   |
| 1528                   | 14881                 |                   | 1.82                 | 1.0E-11                                       | AF118814.1               | NT                            | Homo sapiens PRO3078 mRNA, complete cds   |
| 2086                   | 15235                 | 28358             | 0.94                 | 1.0E-11                                       | P16288                   | SWISSPROT                     | OXYSTEROL-BINDING PROTEIN   |
| 2195                   | 15330                 | 28455             | 3.89                 | 1.0E-11                                       | AF000573.1               | NT                            | Homo sapiens homologues 1,2-dioxygenase gene, complete cds  |
| 2229                   | 15363                 | 28492             | 1.1                  | 1.0E-11                                       | AA308918.1               | EST_HUMAN                     | EST180188 Liver, hepatocellular carcinoma Homo sapiens cDNA 5' end similar to EST containing Alu repeat |
| 3588                   | 16752                 | 29787             | 0.85                 | 1.0E-11                                       | BE004315.1               | EST_HUMAN                     | CM0-BN0105-170300-282-d12 BN0105 Homo sapiens cDNA  |
| 5447                   | 18847                 | 31625             | 14.88                | 1.0E-11                                       | AL163247.2               | NT                            | Homo sapiens chromosome 21 segment HS21C047   |
|                        |                       |                   |                      |   |                          |                               | 7f57d001.x1 NCL_CGAP_P128 Homo sapiens cDNA clone IMAGE:3649845 3' similar to contains MER10.b3         |
| 5953                   | 19139                 | 32455             | 0.78                 | 1.0E-11                                       | BF222848.1               | EST_HUMAN                     | MER10 repetitive element ;  |
| 8398                   | 21477                 | 35004             | 2.65                 | 1.0E-11                                       | 4885546                  | NT                            | Homo sapiens PHD finger protein 2 (PHF2) mRNA   |
| 8781                   | 21860                 | 35403             | 4.61                 | 1.0E-11                                       | R13174.1                 | EST_HUMAN                     | Yf3d08.l1 Soares_infant_brain_1N1B Homo sapiens cDNA clone IMAGE:28168 5'                               |
| 9248                   | 22325                 | 35870             | 1.49                 | 1.0E-11                                       | BF366119.1               | EST_HUMAN                     | QV4-NN1149-250900-423-a03 NN1149 Homo sapiens cDNA  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 8248                   | 22326                 | 35871             | 1.49                 | 1.0E-11                                       | BF365119.1               | EST_HUMAN                     | QV4-NN1149-250900-423-e03 NN1149 Homo sapiens cDNA  |
| 10828                  | 23680                 |                   | 0.54                 | 1.0E-11                                       | AL163302.2               | NT                            | Homo sapiens chromosome 21 segment HS21C102   |
| 11508                  | 24821                 | 38302             | 2.02                 | 1.0E-11                                       | BF680078.1               | EST_HUMAN                     | 602154807F1 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:4285977 5'   |
| 12903                  | 26879                 |                   | 1.37                 | 1.0E-11                                       | Z20377.1                 | EST_HUMAN                     | HSAAACADHP, Human fetal Brain Whole tissue Homo sapiens cDNA  |
| 3017                   | 16183                 | 28216             | 0.75                 | 9.0E-12                                       | P20742                   | SWISSPROT                     | PREGNANCY ZONE PROTEIN PRECURSOR  |
| 10002                  | 23040                 | 36832             | 1.17                 | 9.0E-12                                       | AL163300.2               | NT                            | Homo sapiens chromosome 21 segment HS21C100   |
| 10002                  | 23040                 | 36833             | 1.17                 | 9.0E-12                                       | AL163300.2               | NT                            | Homo sapiens chromosome 21 segment HS21C100   |
| 8539                   | 22804                 |                   | 0.88                 | 8.0E-12                                       | BE074720.1               | EST_HUMAN                     | IL5-BT0578-130300-038-G12 BT0578 Homo sapiens cDNA  |
| 12408                  | 25287                 |                   | 4.88                 | 8.0E-12                                       | AJ271738.1               | NT                            | Homo sapiens Xq pseudautosomal region; segment 2/2  |
| 4783                   | 17818                 | 30905             | 1.57                 | 7.0E-12                                       | Q08904                   | SWISSPROT                     | 34 KD SPICULE MATRIX PROTEIN PRECURSOR (LSM34)  |
| 11631                  | 24711                 | 38402             | 6.8                  | 7.0E-12                                       | AA704735.1               | EST_HUMAN                     | Z23g01.s1 Soares_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:451152 3'  |
| 13225                  | 25903                 |                   | 1.18                 | 7.0E-12                                       | D10473.1                 | NT                            | Human mRNA, Xq terminal portion   |
| 3837                   | 16801                 |                   | 0.98                 | 8.0E-12                                       | AV730554.1               | EST_HUMAN                     | AV730554 HTF Homo sapiens cDNA clone HITFAWF08 5'   |
| 4488                   | 17608                 | 30586             | 9.28                 | 6.0E-12                                       | AA732516.1               | EST_HUMAN                     | nz88711.s1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:1302573 3' similar to contains Alu   |
| 5336                   | 18448                 | 31418             | 5.12                 | 6.0E-12                                       | AA59161.1                | EST_HUMAN                     | (f85g12.x1 Soares_NSF_F8_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:2148438 3' similar to contains MER10.12 MER10 MER10 repetitive element; |
| 9196                   | 22274                 | 35811             | 1.09                 | 6.0E-12                                       | AF003249.1               | NT                            | Marone sarcofili myosin heavy chain FM3A (FM3A) mRNA, complete cds  |
| 8876                   | 22637                 |                   | 1.81                 | 6.0E-12                                       | AAB47898.1               | EST_HUMAN                     | cd10g11.s1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:1387688 similar to contains MER29.12   |
| 13205                  | 25766                 |                   | 1.25                 | 6.0E-12                                       | AA885846.1               | EST_HUMAN                     | MER29 repetitive element;   |
| 1008                   | 14234                 | 27283             | 2.37                 | 5.0E-12                                       | T06573.1                 | EST_HUMAN                     | RC4-OT0072-080400-012-111 OT0072 Homo sapiens cDNA  |
| 3477                   | 16844                 | 29683             | 1.28                 | 5.0E-12                                       | BE047779.1               | EST_HUMAN                     | EST04462 Fetal brain, Striatum (cd1638208) Homo sapiens cDNA clone HFBVDV33   |
| 3821                   | 16981                 | 29884             | 7.44                 | 5.0E-12                                       | AJ271738.1               | NT                            | tz42505.y1 NCI_CGAP_Bnf52 Homo sapiens cDNA clone IMAGE:2281217 5'  |
| 6145                   | 19323                 | 32688             | 6.13                 | 5.0E-12                                       | AL163278.2               | NT                            | Homo sapiens Xq pseudautosomal region; segment 2/2  |
| 6145                   | 19323                 | 32687             | 6.13                 | 5.0E-12                                       | AL163278.2               | NT                            | Homo sapiens chromosome 21 segment HS21C078   |
| 6820                   | 19780                 | 33168             | 9.98                 | 5.0E-12                                       | AA907480.1               | EST_HUMAN                     | EST138850 MAGC resequences, MAGN Homo sapiens cDNA  |
| 7176                   | 20052                 | 33462             | 1.08                 | 5.0E-12                                       | AL040739.1               | EST_HUMAN                     | DKFZp434B1616_s1 434 (synonym: hbs3) Homo sapiens cDNA clone DKFZp434B1615 3'   |
| 7187                   | 20052                 | 33462             | 0.93                 | 5.0E-12                                       | AL040739.1               | EST_HUMAN                     | DKFZp434B1616_s1 434 (synonym: hbs3) Homo sapiens cDNA clone DKFZp434B1615 3'   |
| 8424                   | 21505                 | 35038             | 1.28                 | 6.0E-12                                       | AA033745.1               | EST_HUMAN                     | z01012.s1 Soares_fetal_heart_NH-H19W Homo sapiens cDNA clone IMAGE:375718 3' similar to contains L1.13 L1 repetitive element;             |
| 8867                   | 21848                 |                   | 0.65                 | 5.0E-12                                       | AA987037.1               | EST_HUMAN                     | RC1-OT0088-220300-011-507 OT0088 Homo sapiens cDNA  |
| 9195                   | 22273                 |                   | 0.77                 | 5.0E-12                                       | AL078581.1               | EST_HUMAN                     | DKFZp434J0426_r1 434 (synonym: hbs3) Homo sapiens cDNA clone DKFZp434J0428 5'   |
| 9308                   | 22384                 | 35836             | 2.52                 | 5.0E-12                                       | AJ271735.1               | NT                            | Homo sapiens Xq pseudautosomal region; segment 1/2  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 9023                   | 22578                 | 30247             | 1.22                 | 5.0E-12                                       | P34982                   | SWISSPROT                     | OLFACTORY RECEPTOR 1D2 (OLFACTORY RECEPTOR-LIKE PROTEIN HGMP07E) (OLFACTORY RECEPTOR 17-4) (OR17-4)   |
| 10482                  | 23517                 |                   | 4.8                  | 5.0E-12                                       | AL163303.2               | NT                            | Homo sapiens chromosome 21 segment HS21C103   |
| 10573                  | 23808                 | 37213             | 0.69                 | 5.0E-12                                       | AL163302.2               | NT                            | Homo sapiens chromosome 21 segment HS21C102   |
| 10783                  | 23826                 | 37449             | 0.6                  | 5.0E-12                                       | 6978754                  | NT                            | Rattus norvegicus Deleted in colorectal cancer (rat homolog) (Dcc), mRNA  |
| 254                    | 13474                 | 28605             | 3.29                 | 4.0E-12                                       | AA700326.1               | EST_HUMAN                     | 274g11.s1 Soares_fetal_liver_spleen_INFLS_S1 Homo sapiens cDNA clone IMAGE:460676 3'  |
| 255                    | 13474                 | 28605             | 3.42                 | 4.0E-12                                       | AA700326.1               | EST_HUMAN                     | 274g11.s1 Soares_fetal_liver_spleen_INFLS_S1 Homo sapiens cDNA clone IMAGE:460676 3'  |
| 4742                   | 17877                 | 30860             | 0.88                 | 4.0E-12                                       | AI889984.1               | EST_HUMAN                     | b25h05.x1 NCI_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:2270745 3' similar to TR-Q13639 Q13639 MARINER TRANSPOSASE. ;                               |
| 7787                   | 20953                 |                   | 0.71                 | 4.0E-12                                       | BF445140.1               | EST_HUMAN                     | rad21b03.x1 NCI_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3368077 3' similar to contains MER7.b2 MER7 repetitive element ;                          |
| 8437                   | 21518                 |                   | 4.81                 | 4.0E-12                                       | AF109897.1               | NT                            | Homo sapiens S164 gene, partial cds; PS1 and hypothetical protein genes, complete cds; and S171 gene, partial cds                                 |
| 11338                  | 24401                 | 38050             | 4.33                 | 4.0E-12                                       | AJ228043.1               | NT                            | Homo sapiens 859 kb contig between AML1 and CBR1 on chromosome 21c22, segment 3/3   |
| 12884                  | 25458                 |                   | 2.11                 | 4.0E-12                                       | U78027.1                 | NT                            | Homo sapiens Bruton's tyrosine kinase (BTK), alpha-D-galactosidase A (GLA), L44-like ribosomal protein (L44L) and FTP3 (FTP3) genes, complete cds |
| 631                    | 13816                 | 26839             | 2.58                 | 3.0E-12                                       | AW341883.1               | EST_HUMAN                     | hd13d01.x1 Soares_NFL_T_C8C_S1 Homo sapiens cDNA clone IMAGE:2908377 3' similar to TR:O14517 O14517 SMRP. ;                                       |
| 631                    | 13816                 | 26840             | 2.58                 | 3.0E-12                                       | AW341883.1               | EST_HUMAN                     | hd13d01.x1 Soares_NFL_T_C8C_S1 Homo sapiens cDNA clone IMAGE:2908377 3' similar to TR:O14517 O14517 SMRP. ;                                       |
| 5278                   | 18395                 | 31363             | 0.78                 | 3.0E-12                                       | AL163288.2               | NT                            | Homo sapiens chromosome 21 segment HS21C068   |
| 5568                   | 18765                 | 31806             | 1.44                 | 3.0E-12                                       | AF111168.2               | NT                            | Homo sapiens serine palmitoyl transferase, subunit II gene, complete cds; and unknown genes   |
| 8570                   | 21651                 | 35183             | 0.5                  | 3.0E-12                                       | O95453                   | SWISSPROT                     | SERINE PROTEASE HEPSPIN   |
| 10891                  | 23975                 | 37606             | 2.32                 | 3.0E-12                                       | U37872.1                 | NT                            | Human prostate specific antigen gene, 5' flanking region  |
| 10891                  | 23975                 | 37607             | 2.32                 | 3.0E-12                                       | U37872.1                 | NT                            | Human prostate specific antigen gene, 5' flanking region  |
| 1885                   | 14837                 | 27821             | 1.24                 | 2.0E-12                                       | AW802131.1               | EST_HUMAN                     | IL5-LJM0071-120400-085-e05 UNK0071 Homo sapiens cDNA  |
| 3658                   | 16721                 | 28736             | 0.93                 | 2.0E-12                                       | 6754495                  | NT                            | Mus musculus keratin-associated protein 6.2 (Krtap6-2), mRNA  |
| 4230                   | 17377                 | 30366             | 1.29                 | 2.0E-12                                       | J01884.1                 | NT                            | Rat U3A small nuclear RNA   |
| 4230                   | 17377                 | 30366             | 1.29                 | 2.0E-12                                       | J01884.1                 | NT                            | Rat U3A small nuclear RNA   |
| 4941                   | 17679                 |                   | 2.09                 | 2.0E-12                                       | BE063509.1               | EST_HUMAN                     | CH4-BT0281-031109-087-e03 BT0281 Homo sapiens cDNA  |
| 5018                   | 18147                 | 31123             | 0.71                 | 2.0E-12                                       | O70306                   | SWISSPROT                     | TBX15 PROTEIN (T-BOX PROTEIN 15)  |
| 5018                   | 18147                 | 31124             | 0.71                 | 2.0E-12                                       | O70306                   | SWISSPROT                     | TBX15 PROTEIN (T-BOX PROTEIN 15)  |
| 6808                   | 19766                 |                   | 2.08                 | 2.0E-12                                       | AW971857.1               | EST_HUMAN                     | EST1383946 MAGC resequences, MAGL Homo sapiens cDNA   |
| 7328                   | 20408                 | 33870             | 3.85                 | 2.0E-12                                       | T08169.1                 | EST_HUMAN                     | EST106060 Infant Brain, Banto Soares Homo sapiens cDNA clone HIBBA13 5' end   |



Table 4  
Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 7469                   | 20674                 | 34047             | 1.33                 | 2.0E-12                                       | BE173035.1               | EST_HUMAN                     | MRO-HT0559-200400-015-e08 HT0559 Homo sapiens cDNA   |
| 7838                   | 20893                 | 34395             | 2.19                 | 2.0E-12                                       | 11422228                 | NT                            | Homo sapiens Ac-like transposable element (ALTE), mRNA   |
| 9508                   | 22774                 |                   | 1.88                 | 2.0E-12                                       | AF188884.1               | NT                            | Homo sapiens putative BPES syndrome breakpoint region protein gene, complete cds                         |
| 10191                  | 23228                 |                   | 8.32                 | 2.0E-12                                       | BE165880.1               | EST_HUMAN                     | MR3-HT0487-150200-113-g01 HT0487 Homo sapiens cDNA   |
| 10733                  | 23766                 | 37375             | 0.76                 | 2.0E-12                                       | AI334130.1               | EST_HUMAN                     | qq0702.x1 Scores_NhhMPu_S1 Homo sapiens cDNA clone IMAGE:1831835 3' similar to TR-Q13538                 |
| 12129                  | 25109                 | 36813             | 1.53                 | 2.0E-12                                       | AW242934.1               | EST_HUMAN                     | Q13538 ORF2: FUNCTION UNKNOWN.   |
| 12313                  | 25228                 |                   | 1.34                 | 2.0E-12                                       | AL183283.2               | NT                            | yo27h03.x1 NCL_CGAP_Kd11 Homo sapiens cDNA clone IMAGE:2884985 3'  |
| 12516                  | 25352                 |                   | 1.46                 | 2.0E-12                                       | 11418248                 | NT                            | Homo sapiens chromosome 21 segment HS21C083  |
| 125                    | 13354                 | 26385             | 1.64                 | 1.0E-12                                       | AW627874.1               | EST_HUMAN                     | Homo sapiens sulfotransferase-related protein (SULTX3), mRNA   |
| 2044                   | 15185                 |                   | 1.78                 | 1.0E-12                                       | AB71728.1                | EST_HUMAN                     | h180408.x1 NCL_CGAP_GU1 Homo sapiens cDNA clone IMAGE:2870040 3' similar to contains MER18.H1            |
| 3138                   | 16314                 | 20326             | 1.04                 | 1.0E-12                                       | AF000891.1               | NT                            | MER18 repetitive element.  |
| 3138                   | 16314                 | 28327             | 1.04                 | 1.0E-12                                       | AF000891.1               | NT                            | wt5f07.x1 NCL_CGAP_U12 Homo sapiens cDNA clone IMAGE:2439493 3' similar to contains L1.b3 L1             |
| 3978                   | 17135                 | 30138             | 40.43                | 1.0E-12                                       | AU132248.1               | EST_HUMAN                     | repetitive element:  |
| 3978                   | 17135                 | 30139             | 40.43                | 1.0E-12                                       | AU132248.1               | EST_HUMAN                     | Homo sapiens testis-specific Testis Transcript Y 2 (TTY2) mRNA, partial cds                              |
| 6088                   | 19289                 |                   | 1.8                  | 1.0E-12                                       | U82828.1                 | NT                            | Homo sapiens testis-specific Testis Transcript Y 2 (TTY2) mRNA, partial cds                              |
| 6188                   | 19342                 |                   | 1.82                 | 1.0E-12                                       | Q8Y2G7                   | SWISSPROT                     | Homo sapiens testis-specific Testis Transcript Y 2 (TTY2) mRNA, partial cds                              |
| 6282                   | 19455                 | 32804             | 0.59                 | 1.0E-12                                       | BF642800.1               | EST_HUMAN                     | AU132248 NT2RP3 Homo sapiens cDNA clone NT2RP3004070 5' -  |
| 6282                   | 19455                 | 32805             | 0.59                 | 1.0E-12                                       | BF642800.1               | EST_HUMAN                     | AU132248 NT2RP3 Homo sapiens cDNA clone NT2RP3004070 5' -  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens ataxia telangiectasia (ATM) gene, complete cds  |
|                        |                       |                   |                      |   |                          |                               | HYPOTHETICAL ZINC FINGER PROTEIN KIAA0961  |
|                        |                       |                   |                      |   |                          |                               | EST000008 Scores_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:1847869 6'                                   |
|                        |                       |                   |                      |   |                          |                               | EST000008 Scores_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:1847869 5'                                   |
|                        |                       |                   |                      |   |                          |                               | Mus musculus WNT-2 gene, partial cds; putative ankyrin-related protein and cystic fibrosis transmembrane |
| 6882                   | 19821                 | 33208             | 0.83                 | 1.0E-12                                       | AF228843.1               | NT                            | conductance regulator (CFTR) genes, section 1 of 2 of the complete cds; and unknown gene                 |
| 7265                   | 20348                 | 33800             | 2.53                 | 1.0E-12                                       | AF188884.1               | NT                            | Homo sapiens putative BPES syndrome breakpoint region protein gene, complete cds                         |
|                        |                       |                   |                      |   |                          |                               | qf68a04.x1 Scores_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:1848614 3' similar to        |
|                        |                       |                   |                      |   |                          |                               | gdxM18503 LINE-1 REVERSE TRANSCRIPTASE HOMOLOG (HUMAN); contains MER10.H1 MER10                          |
|                        |                       |                   |                      |   |                          |                               | repetitive element:  |
| 7300                   | 20382                 | 33840             | 10.78                | 1.0E-12                                       | AI248533.1               | EST_HUMAN                     | qf68a04.x1 Scores_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:1848614 3' similar to        |
|                        |                       |                   |                      |   |                          |                               | gdxM18503 LINE-1 REVERSE TRANSCRIPTASE HOMOLOG (HUMAN); contains MER10.H1 MER10                          |
| 7300                   | 20382                 | 33841             | 10.78                | 1.0E-12                                       | AI248533.1               | EST_HUMAN                     | repetitive element:  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 8686                   | 21768                 | 35298             | 0.59                 | 1.0E-12                                       | U68059.1                 | NT                            | Human gamma T-cell receptor beta chain Dopamine-beta-hydroxylase-like, TRY1, TRY2, TRY3, TCRBV27S1P, TCRBV22S1A2N1T, TCRBV6S1A1T, TCRBV7S1A1N2T, TCRBV5S1A1T, TCRBV13S3, TCRBV6S7P, TCRBV7S3A2T, TCRBV13S2A1T, TCRBV6S2A2PT, TCRBV7S2A1N4T, TCRBV13S3/13S> |
| 8902                   | 21981                 | 35521             | 1.25                 | 1.0E-12                                       | AA782323.1               | EST_HUMAN                     | ac26605.s1 Strati gene ovary (8637217) Homo sapiens cDNA clone IMAGE:357577 3'   |
| 12215                  | 26168                 | 36835             | 2.92                 | 1.0E-12                                       | AW062164.1               | EST_HUMAN                     | EST1374237 MAGE reassortment, MAGG Homo sapiens cDNA   |
| 12437                  | 25310                 |                   | 1.54                 | 1.0E-12                                       | AI738592.1               | EST_HUMAN                     | wk33f08.x1 NCI_CGAP_Co16 Homo sapiens cDNA clone IMAGE:2392085 3'  |
| 12600                  | 26068                 |                   | 1.93                 | 1.0E-12                                       | AL163268.2               | NT                            | Homo sapiens chromosome 21 segment HS21C068  |
| 12788                  | 26168                 |                   | 1.19                 | 1.0E-12                                       | P44836                   | SWISSPROT                     | PROBABLE TONIB-DEPENDENT RECEPTOR H10712 PRECURSOR   |
| 12961                  | 26561                 |                   | 2.82                 | 1.0E-12                                       | AF224693.1               | NT                            | Homo sapiens mannosidase, beta A, lysosomal (MANBA) gene, and ubiquitin-conjugating enzyme E2D 3 (UBE2D3) genes, complete cds  |
| 4050                   | 17212                 | 30223             | 1.21                 | 9.0E-13                                       | AB028900.1               | NT                            | Homo sapiens CST gene for cerebroside sulfotransferase, exon 1, 2, 3, 4, 5   |
| 9801                   | 22941                 |                   | 2.81                 | 9.0E-13                                       | N69653.1                 | EST_HUMAN                     | za28803.s1 Soares fetal liver spleen 1N1LS Homo sapiens cDNA clone IMAGE:293651 3'   |
| 735                    | 13917                 | 26957             | 5.03                 | 8.0E-13                                       | U28185.1                 | NT                            | Homo sapiens prion protein (PrP) gene, complete cds  |
| 735                    | 13917                 | 26958             | 5.03                 | 8.0E-13                                       | U28185.1                 | NT                            | Homo sapiens prion protein (PrP) gene, complete cds  |
| 1885                   | 15029                 | 28136             | 2.73                 | 8.0E-13                                       | U80017.1                 | NT                            | Homo sapiens basic transcription factor 2 p44 (btf2p44) gene, partial cds, neuronal apoptosis inhibitory protein (napi) and survival motor neuron protein (smn) genes, complete cds  |
| 8303                   | 21385                 | 34608             | 0.63                 | 8.0E-13                                       | AI894398.1               | EST_HUMAN                     | wm31h08.x1 NCI_CGAP_U4 Homo sapiens cDNA clone IMAGE:2437801 3'  |
| 8303                   | 21385                 | 34607             | 0.63                 | 8.0E-13                                       | AI894398.1               | EST_HUMAN                     | wm31h08.x1 NCI_CGAP_U4 Homo sapiens cDNA clone IMAGE:2437801 3'  |
| 10350                  | 23385                 |                   | 2.82                 | 8.0E-13                                       | U78027.1                 | NT                            | Homo sapiens Bruton's tyrosine kinase (BTK), alpha-D-galactosidase A (GLA), L44-like ribosomal protein (L44L) and FTP3 (FTP3) genes, complete cds  |
| 8429                   | 21610                 |                   | 0.77                 | 7.0E-13                                       | Q06166                   | SWISSPROT                     | OLFACTORY RECEPTOR-LIKE PROTEIN OLF2   |
| 12713                  | 25474                 |                   | 32                   | 7.0E-13                                       | BE778223.1               | EST_HUMAN                     | 501463285F1 NIH_MGC_67 Homo sapiens cDNA clone IMAGE:3866513 5'  |
| 12976                  | 26635                 |                   | 1.53                 | 7.0E-13                                       | Q10473                   | SWISSPROT                     | POLYPEPTIDE N-ACETYL GALACTOSAMINYLTRANSFERASE (PROTEIN-UDP ACETYL GALACTOSAMINYLTRANSFERASE) (UDP-GALNAC:POLYPEPTIDE, N-ACETYL GALACTOSAMINYLTRANSFERASE) (GALNAC-T1)   |
| 2168                   | 16303                 | 28430             | 5.65                 | 8.0E-13                                       | AL163207.2               | NT                            | Homo sapiens chromosome 21 segment HS21C007  |
| 6239                   | 18361                 | 31329             | 0.93                 | 8.0E-13                                       | A267928.1                | EST_HUMAN                     | qp44a09.x1 NCI_CGAP_Lu5 Homo sapiens cDNA clone IMAGE:1911352 3'   |
| 3399                   | 16509                 |                   | 1.15                 | 5.0E-13                                       | R78338.1                 | EST_HUMAN                     | y62004.r1 Soares placenta NB2HP Homo sapiens cDNA clone IMAGE:145759 5'  |
| 3484                   | 16652                 |                   | 1.56                 | 5.0E-13                                       | AA435773.1               | EST_HUMAN                     | z177a12.s1 Soares testis_NHT Homo sapiens cDNA clone IMAGE:728360 3' similar to contains Alu repetitive element/contains element MER22 repetitive element  |
| 7016                   | 20162                 | 33572             | 0.99                 | 5.0E-13                                       | P08083                   | SWISSPROT                     | GAP JUNCTION BETA-1 PROTEIN (CONNEXIN 30) (CX30)   |
| 11100                  | 24173                 | 37808             | 2.84                 | 5.0E-13                                       | P07313                   | SWISSPROT                     | MYOSIN LIGHT CHAIN KINASE, SKELETAL MUSCLE (MLCK)  |
| 1016                   | 15059                 |                   | 4.98                 | 4.0E-13                                       | AW378914.1               | EST_HUMAN                     | FM2-HT0224-221069-001-011 HT0224 Homo sapiens cDNA   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 2531                   | 15558                 |                   | 1.61                 | 4.0E-13                                       | AF003529.1               | NT                            | Homo sapiens glycican 3 (GPC3) gene, partial cds and flanking repeat regions   |
| 4899                   | 18002                 |                   | 1.06                 | 4.0E-13                                       | AA454054.1               | EST_HUMAN                     | z4807.1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:785469 5'  |
| 5704                   | 18987                 | 32189             | 4.47                 | 4.0E-13                                       | BE169131.1               | EST_HUMAN                     | PM3-HT0520-230200-002-c08 HT0520 Homo sapiens cDNA   |
| 7355                   | 20434                 | 33896             | 1.09                 | 4.0E-13                                       | AB037760.1               | NT                            | Homo sapiens mRNA for KIAA1329 protein, partial cds  |
| 7788                   | 20844                 | 34337             | 1.08                 | 4.0E-13                                       | AA431529.1               | EST_HUMAN                     | z478g12.1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:782182 5' similar to TR:G452763  |
| 7898                   | 20860                 |                   | 2.62                 | 4.0E-13                                       | AA4291.1                 | EST_HUMAN                     | y933g05.1 Soares melanocyte 2NblHM Homo sapiens cDNA clone IMAGE:273080 5' similar to PIR:A32895   |
| 9042                   | 22121                 | 35683             | 1.38                 | 4.0E-13                                       | AL043810.1               | EST_HUMAN                     | A32895 t complex sterility protein - mouse   |
| 9702                   | 22751                 | 36321             | 0.47                 | 4.0E-13                                       | AA076807.1               | EST_HUMAN                     | DKF7p434A0128_11 434 (synonym: hba3) Homo sapiens cDNA clone DKF7p434A0128 5'  |
| 10228                  | 23262                 | 36850             | 4.44                 | 4.0E-13                                       | AL289831.1               | EST_HUMAN                     | 7B04H11 Chromosome 7 Fetal Brain cDNA Library Homo sapiens cDNA clone 7B04H11  |
| 11439                  | 24500                 | 38167             | 1.54                 | 4.0E-13                                       | AA435819.1               | EST_HUMAN                     | q482405.1 NCJ CGAP_Kid5 Homo sapiens cDNA clone IMAGE:1898945 3' similar to contains Alu   |
| 11439                  | 24500                 | 38168             | 1.54                 | 4.0E-13                                       | AA435819.1               | EST_HUMAN                     | repetitive element   |
| 184                    | 13406                 |                   | 4.95                 | 3.0E-13                                       | AF003528.1               | NT                            | z478g10.s1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:728514 3'   |
| 888                    | 14064                 |                   | 1.81                 | 3.0E-13                                       | AA430310.1               | EST_HUMAN                     | z478g10.s1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:728514 3'   |
| 1502                   | 14655                 | 27737             | 0.96                 | 3.0E-13                                       | AB04181.1                | EST_HUMAN                     | z478g10.s1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:728514 3'   |
| 2443                   | 15571                 | 28700             | 1.83                 | 3.0E-13                                       | AJ271738.1               | NT                            | Homo sapiens X-linked anhidrotic ectodermal dysplasia protein gene (EDA), exon 2 and flanking repeat regions   |
| 2648                   | 15673                 |                   | 2.28                 | 3.0E-13                                       | AL163210.2               | NT                            | z488g08.1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:781408 5'  |
| 2729                   | 15847                 | 28957             | 3.69                 | 3.0E-13                                       | BF372962.1               | EST_HUMAN                     | CM-BT043-080299-075 BT043 Homo sapiens cDNA  |
| 3266                   | 16430                 |                   | 2.44                 | 3.0E-13                                       | AA745944.1               | EST_HUMAN                     | Homo sapiens Xq pseudautosomal region; segment 2/2   |
| 3562                   | 16756                 | 29771             | 9.73                 | 3.0E-13                                       | P18616                   | SWISSPROT                     | Homo sapiens chromosome 21 segment HS21C010  |
| 3592                   | 16756                 | 29772             | 9.73                 | 3.0E-13                                       | P18616                   | SWISSPROT                     | CM3-F10100-140700-242-H08 FT0100 Homo sapiens cDNA   |
| 5657                   | 18851                 | 32133             | 0.88                 | 3.0E-13                                       | AA134017.1               | EST_HUMAN                     | cb18402.s1 NCJ CGAP_Kid5 Homo sapiens cDNA clone IMAGE:1324035 3'  |
| 5657                   | 18851                 | 32134             | 0.88                 | 3.0E-13                                       | AA134017.1               | EST_HUMAN                     | DNA-DIRECTED RNA POLYMERASE II LARGEST SUBUNIT (VERSION 1)   |
| 6114                   | 19294                 | 32829             | 0.73                 | 3.0E-13                                       | AW005639.1               | EST_HUMAN                     | DNA-DIRECTED RNA POLYMERASE II LARGEST SUBUNIT (VERSION 1)   |
| 8067                   | 21149                 | 34669             | 7.1                  | 3.0E-13                                       | U52111.2                 | NT                            | z488h10.1 Stratiogene lung carcinoma 837218 Homo sapiens cDNA clone IMAGE:585315 5' similar to contains THR.12 THR repetitive element  |
|                        |                       |                   |                      |   |                          | EST_HUMAN                     | z488h10.1 Stratiogene lung carcinoma 837218 Homo sapiens cDNA clone IMAGE:585315 5' similar to contains THR.12 THR repetitive element  |
|                        |                       |                   |                      |   |                          | EST_HUMAN                     | wz88c02.x1 NCJ CGAP_Bm25 Homo sapiens cDNA clone IMAGE:2565860 3' similar to TR:O75139   |
|                        |                       |                   |                      |   |                          | EST_HUMAN                     | O75139 KIAA0644 PROTEIN ;  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens X28 region near ALD locus containing dual specificity phosphatase 9 (DUSP9), ribosomal protein L18a (RPL18a), Ca2+/Calmodulin-dependent protein kinase I (CAMKI), creatine transporter (CRT), CDM protein (CDM), adrenoleukodystrophy protein > |

Page 233 of 550  
Table 4  
Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 8268                   | 21350                 | 34865             | 0.5                  | 3.0E-13                                       | AA352487.1               | EST_HUMAN                     | EST160487 Activated T-cells XX Homo sapiens cDNA 5' and similar to similar to serine protease P100, Reactive factor   |
| 8268                   | 21350                 | 34866             | 0.5                  | 3.0E-13                                       | AA352487.1               | EST_HUMAN                     | EST160487 Activated T-cells XX Homo sapiens cDNA 5' and similar to similar to serine protease P100, Reactive factor   |
| 10401                  | 23436                 | 37043             | 0.58                 | 3.0E-13                                       | AW935487.1               | EST_HUMAN                     | RC2-DT0007-110100-014-g10 DT0007 Homo sapiens cDNA  |
| 10915                  | 23938                 |                   | 3.1                  | 3.0E-13                                       | AD64768.1                | EST_HUMAN                     | HAG536 Human fetal liver cDNA library Homo sapiens cDNA   |
| 11301                  | 24367                 | 38008             | 3.41                 | 3.0E-13                                       | BE063508.1               | EST_HUMAN                     | CM0-BT0281-031199-087-a03 BT0281 Homo sapiens cDNA  |
| 11888                  | 24886                 | 38585             | 1.62                 | 3.0E-13                                       | AL163248.2               | NT                            | Homo sapiens chromosome 21 segment HS21C048   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens X28 region near ALD locus containing dual specificity phosphatase 9 (DUSP9), ribosomal protein L18a (RPL18a), Ca2+/Calmodulin-dependent protein kinase 1 (CAMK1), creatine transporter (CRTR), CDM protein (CDM), adrenoleukodystrophy protein > |
| 154                    | 13379                 | 28411             | 3.52                 | 2.0E-13                                       | U52111.2                 | NT                            | Danio rerio fibroblast growth factor receptor 4 mRNA, complete cds  |
| 249                    | 13470                 | 28502             | 2.06                 | 2.0E-13                                       | U23839.1                 | NT                            |   |
| 1289                   | 14455                 | 27521             | 8.93                 | 2.0E-13                                       | AF239710.1               | NT                            | Homo sapiens DNA polymerase delta small subunit (POLD2) gene, exons 1 through 11 and complete cds   |
| 3070                   | 16246                 | 28266             | 0.61                 | 2.0E-13                                       | 8824119                  | NT                            | Homo sapiens hypothetical protein PRO2130 (PRO2130), mRNA   |
| 3070                   | 16246                 | 28267             | 0.61                 | 2.0E-13                                       | 8824119                  | NT                            | Homo sapiens hypothetical protein PRO2130 (PRO2130), mRNA   |
| 3596                   | 16760                 | 29776             | 1.68                 | 2.0E-13                                       | AF108807.1               | NT                            | Homo sapiens S164 gene, partial cds; PS1 and hypothetical protein genes, complete cds; and S171 gene, partial cds   |
| 4224                   | 17372                 |                   | 2.07                 | 2.0E-13                                       | AL163278.2               | NT                            | Homo sapiens chromosome 21 segment HS21C078   |
| 6250                   | 19424                 | 32770             | 4.34                 | 2.0E-13                                       | Q06852                   | SWISSPROT                     | CELL SURFACE GLYCOPROTEIN 1 PRECURSOR (OUTER LAYER PROTEIN B) (S-LAYER PROTEIN 1)   |
| 6335                   | 19506                 |                   | 0.58                 | 2.0E-13                                       | X79417.1                 | NT                            | S. scrofa rps12 mRNA for ribosomal protein S12  |
| 6964                   | 20267                 | 33704             | 5.73                 | 2.0E-13                                       | X16912.1                 | NT                            | Human PFKL gene for liver-type 6-phosphofructokinase (EC 2.7.1.11) exon 2   |
| 7189                   | 20064                 | 33474             | 0.6                  | 2.0E-13                                       | 10835072                 | NT                            | Homo sapiens N-myristyltransferase 1 (NMT1), mRNA   |
| 7189                   | 20064                 | 33475             | 0.6                  | 2.0E-13                                       | 10835072                 | NT                            | Homo sapiens N-myristyltransferase 1 (NMT1), mRNA   |
| 10675                  | 23709                 | 37317             | 2.41                 | 2.0E-13                                       | 5031898                  | NT                            | Homo sapiens mab-21 (G. elegans)-like 1 (MAB21L1) mRNA  |
| 12388                  | 25274                 |                   | 22.49                | 2.0E-13                                       | AW932153.1               | EST_HUMAN                     | CM0-HN0001-100390-274-e11 HN0001 Homo sapiens cDNA  |
| 302                    | 13518                 | 28551             | 1.34                 | 1.0E-13                                       | S74128.1                 | NT                            | FGF-1-fibroblast growth factor 1 [human, kidney, Genomic, 342 nt, segment 2 of 2]   |
| 911                    | 14086                 | 27151             | 5.53                 | 1.0E-13                                       | AL007973.1               | NT                            | Homo sapiens LGMD2B gene  |
|                        |                       |                   |                      |   |                          |                               | H. sapiens DMA, DMB, HLA-Z1, IPP2, LMP2, TAP1, LMP7, TAP2, DOB, DOB2 and RING8, 9, 13 and 14 genes  |
| 1367                   | 14521                 | 27596             | 1.4                  | 1.0E-13                                       | XB7944.1                 | NT                            |   |
| 2079                   | 15219                 | 28339             | 2.61                 | 1.0E-13                                       | AA720574.1               | EST_HUMAN                     | hw21g02.e1 NCL CGAP_G0B0 Homo sapiens cDNA clone IMAGE:1241138 3' similar to contains THR3 THR repetitive element:  |
| 4715                   | 17950                 | 30853             | 1.32                 | 1.0E-13                                       | BF340987.1               | EST_HUMAN                     | 602038002F1 NCL CGAP_Bm84 Homo sapiens cDNA clone IMAGE:4185568 5'  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 8094                   | 21178                 | 34891             | 0.97                 | 1.0E-13                                       | AA577812.1               | EST_HUMAN                     | nm24401.s1 NCI_CGAP_Gas1 Homo sapiens cDNA clone IMAGE:1084801 3' similar to contains Alu repetitive element/contains element MER24 repetitive element; |
| 8094                   | 21178                 | 34892             | 0.97                 | 1.0E-13                                       | AA577812.1               | EST_HUMAN                     | nm24401.s1 NCI_CGAP_Gas1 Homo sapiens cDNA clone IMAGE:1084801 3' similar to contains Alu repetitive element/contains element MER24 repetitive element; |
| 10285                  | 23330                 |                   | 1.04                 | 1.0E-13                                       | O15461                   | SWISSPROT                     | MELANOMA-ASSOCIATED ANTIGEN B4 (MAGE-B4 ANTIGEN)  |
| 10508                  | 23543                 | 37154             | 0.6                  | 1.0E-13                                       | AF300701.1               | NT                            | Mus musculus osteoblastic protein tyrosine phosphatase mRNA, complete cds   |
| 11661                  | 24740                 | 38431             | 6.74                 | 1.0E-13                                       | BF108755.1               | EST_HUMAN                     | 744610.x1 Soares_NSF_F8_9W_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:3524443 3' similar to contains MER29.b2 MER29 repetitive element;                   |
| 12208                  | 25160                 |                   | 1.38                 | 1.0E-13                                       | AV716377.1               | EST_HUMAN                     | AV716377 DC8 Homo sapiens cDNA clone DCBAIE03 5'  |
| 12920                  | 26605                 |                   | 3.48                 | 1.0E-13                                       | AJ271735.1               | NT                            | Homo sapiens Xq pseudautosomal region; segment 1/2  |
| 13077                  | 25706                 |                   | 1.85                 | 1.0E-13                                       | X87578.1                 | NT                            | H. sapiens CD4 gene   |
| 343                    | 13554                 | 26583             | 3.76                 | 9.0E-14                                       | AA781159.1               | EST_HUMAN                     | q24c01.s1 Soares_testis_NHT Homo sapiens cDNA clone 1391232 3' similar to contains MER19.11 MER19 repetitive element;                                   |
| 344                    | 13555                 | 26584             | 1.84                 | 9.0E-14                                       | AA781159.1               | EST_HUMAN                     | q24c01.s1 Soares_testis_NHT Homo sapiens cDNA clone 1391232 3' similar to contains MER19.11 MER19 repetitive element;                                   |
| 2569                   | 15994                 |                   | 4.13                 | 9.0E-14                                       | AW861577.1               | EST_HUMAN                     | RC4-CT0322-080100-013-d09 CT0322 Homo sapiens cDNA  |
| 2811                   | 15925                 | 28036             | 7.9                  | 9.0E-14                                       | AB038162.1               | NT                            | Homo sapiens TTF gene cluster for tritofactor, complete cds   |
| 3180                   | 16355                 | 28360             | 7.5                  | 9.0E-14                                       | AW513286.1               | EST_HUMAN                     | xs54h05.x1 NCI_CGAP_UH Homo sapiens cDNA clone IMAGE:2707833 3'   |
| 3310                   | 13554                 | 26583             | 1                    | 9.0E-14                                       | AA781159.1               | EST_HUMAN                     | q24c01.s1 Soares_testis_NHT Homo sapiens cDNA clone 1391232 3' similar to contains MER19.11 MER19 repetitive element;                                   |
| 3698                   | 17057                 | 30057             | 7.37                 | 9.0E-14                                       | D14547.1                 | NT                            | Human DNA, SINE repetitive element  |
| 4879                   | 18010                 | 30994             | 2.23                 | 9.0E-14                                       | AJ002153.1               | NT                            | Sequitus oedipus gene for seminal vesicle secreted protein semenogelin I  |
| 3587                   | 16751                 |                   | 1.17                 | 8.0E-14                                       | BE468263.1               | EST_HUMAN                     | h271c09.x1 NCI_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3213424 3'   |
| 4068                   | 17222                 |                   | 3.84                 | 8.0E-14                                       | R76286.1                 | EST_HUMAN                     | y172e03.r1 Soares placenta Nb2HP Homo sapiens cDNA clone IMAGE:144768 3'  |
| 9047                   | 21090                 | 34805             | 38.93                | 8.0E-14                                       | X86211.1                 | NT                            | H. sapiens DNA for endogenous retroviral like element   |
| 9760                   | 22698                 | 36268             | 3.22                 | 8.0E-14                                       | AA219318.1               | EST_HUMAN                     | za17c10.s1 Stragene fetal retina 937202 Homo sapiens cDNA clone IMAGE:628970 3'   |
| 11717                  | 24767                 |                   | 1.79                 | 8.0E-14                                       | BE062658.1               | EST_HUMAN                     | QV2-BT0258-281089-014-a01 BT0258 Homo sapiens cDNA  |
| 12611                  | 25410                 | 32048             | 2.43                 | 8.0E-14                                       | A1698118.1               | EST_HUMAN                     | ws82h08.x1 NCI_CGAP_Co3 Homo sapiens cDNA clone IMAGE:2326143 3'  |
| 1658                   | 16044                 |                   | 4.76                 | 7.0E-14                                       | AW151673.1               | EST_HUMAN                     | xs67e10.x1 NCI_CGAP_Gas4 Homo sapiens cDNA clone IMAGE:2623148 3' similar to contains MER10.12  |
| 9120                   | 22169                 |                   | 0.73                 | 7.0E-14                                       | AL163285.2               | NT                            | MER10 repetitive element;   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens chromosome 21 segment HS21C085   |
| 378                    | 13588                 | 26620             | 12.43                | 6.0E-14                                       | AF020503.1               | NT                            | Homo sapiens FRA3B common fragile region, diadenosine triphosphate hydrolase (FHT) gene, exon 5   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 10027                  | 23065                 | 36682             | 2.19                 | 6.0E-14                                       | AF020503.1               | NT                            | Homo sapiens FRA3B common fragile region, diadenosine triphosphate hydrolase (FHT) gene, exon 5   |
| 10027                  | 23065                 | 36683             | 2.19                 | 6.0E-14                                       | AF020503.1               | NT                            | Homo sapiens FRA3B common fragile region, diadenosine triphosphate hydrolase (FHT) gene, exon 5   |
| 633                    | 13918                 | 26842             | 4.17                 | 5.0E-14                                       | Q63120                   | SWISSPROT                     | CANALICULAR MULTISPECIFIC ORGANIC ANION TRANSPORTER 1 (MULTIDRUG RESISTANCE-ASSOCIATED PROTEIN 2) (CANALICULAR MULTIDRUG RESISTANCE PROTEIN)            |
| 6168                   | 18288                 | 31254             | 1.32                 | 5.0E-14                                       | AW073791.1               | EST_HUMAN                     | x603b05.x1 NCI_CGAP_GUT1 Homo sapiens cDNA clone IMAGE:2876185 3' similar to contains L1.12 L1 repetitive element;                                      |
| 5650                   | 18944                 | 32125             | 5.28                 | 5.0E-14                                       | P08547                   | SWISSPROT                     | LINE-1 REVERSE TRANSCRIPTASE HOMOLOG  |
| 1147                   | 16030                 |                   | 1.61                 | 4.0E-14                                       | P04928                   | SWISSPROT                     | S-ANTIGEN PROTEIN PRECURSOR   |
| 1926                   | 15069                 | 28174             | 10.15                | 4.0E-14                                       | AJ007873.1               | NT                            | Homo sapiens LGMD2B gene  |
| 3847                   | 17007                 |                   | 0.73                 | 4.0E-14                                       | AA046502.1               | EST_HUMAN                     | 2467a03.r1 Soares_pregnant_uterus_NbrHPU Homo sapiens cDNA clone IMAGE:487898 5'  |
| 4407                   | 17549                 | 30553             | 1.04                 | 4.0E-14                                       | N46328.1                 | EST_HUMAN                     | yf73c12.e1 Soares_multiple_sclerosis_2NBHMSP Homo sapiens cDNA clone IMAGE:278180 3' similar to contains L1.13 L1 repetitive element;                   |
| 8145                   | 21227                 |                   | 0.71                 | 4.0E-14                                       | X87344.1                 | NT                            | H. sapiens DMA, DMB, HLA-z1, IPP2, LMP2, TAP1, LMP7, TAP2, DOB, DQB2 and RING8, 9, 13 and 14 genes  |
| 12043                  | 25024                 | 38729             | 5.5                  | 4.0E-14                                       | BE242468.1               | EST_HUMAN                     | TCAAP1D1470 Pediatric acute myelogenous leukemia cell (FAB M1) Baylor-HGSC project=TCAA Homo sapiens cDNA clone TCAAP1470                               |
| 12866                  | 26203                 |                   | 5.69                 | 4.0E-14                                       | AB888224.1               | EST_HUMAN                     | wm08c03.x1 NCI_CGAP_UH Homo sapiens cDNA clone IMAGE:2435332 3' similar to contains Alu repetitive element;   |
| 972                    | 14145                 | 27204             | 1.58                 | 3.0E-14                                       | X95498.1                 | NT                            | R. norvegicus mRNA for GPG2 protein   |
| 6873                   | 20025                 | 33434             | 0.93                 | 3.0E-14                                       | AA020786.1               | EST_HUMAN                     | f691c12.x1 NCI_CGAP_P728 Homo sapiens cDNA clone IMAGE:2084070 3' similar to TR:O00519 000519 FATTY ACID AMIDE HYDROLASE.;                              |
| 6873                   | 20025                 | 33435             | 0.93                 | 3.0E-14                                       | AA020786.1               | EST_HUMAN                     | f691c12.x1 NCI_CGAP_P728 Homo sapiens cDNA clone IMAGE:2084070 3' similar to TR:O00519 000519 FATTY ACID AMIDE HYDROLASE.;                              |
| 7173                   | 20308                 | 33749             | 0.6                  | 3.0E-14                                       | AA386311.1               | EST_HUMAN                     | EST168054 Brain IV Homo sapiens cDNA  |
| 8987                   | 22066                 | 35608             | 0.86                 | 3.0E-14                                       | N42165.1                 | EST_HUMAN                     | y07b10.r1 Soares_melanocyte_2NBHM Homo sapiens cDNA clone IMAGE:270523 5'   |
| 11512                  | 18405                 | 31533             | 5.87                 | 3.0E-14                                       | AW263554.1               | EST_HUMAN                     | xp45f12.x1 NCI_CGAP_JN11 Homo sapiens cDNA clone IMAGE:2743343 3' similar to contains Alu repetitive element; contains element MER9 repetitive element; |
| 12804                  | 26041                 |                   | 1.88                 | 3.0E-14                                       | AL163285.2               | NT                            | Homo sapiens chromosome 21 segment HS21C085   |
| 13212                  | 25894                 | 31853             | 1.51                 | 3.0E-14                                       | BE891650.1               | EST_HUMAN                     | 601435233.F1 NIH_MGC_72 Homo sapiens cDNA clone IMAGE:3920180 5'  |
| 401                    | 13598                 | 26634             | 2.33                 | 2.0E-14                                       | AJ271736.1               | NT                            | Homo sapiens Xq pseudautosomal region; segment 2/2  |
| 401                    | 13598                 | 26635             | 2.33                 | 2.0E-14                                       | AJ271736.1               | NT                            | Homo sapiens Xq pseudautosomal region; segment 2/2  |
| 708                    | 16019                 | 26825             | 11.98                | 2.0E-14                                       | AL163303.2               | NT                            | Homo sapiens chromosome 21 segment HS21C103   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top)<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 2491                   | 15588                 |                   | 1.04                 | 2.0E-14                                   | AW372888.1               | EST_HUMAN                     | RC5-BT0377-081289-031-D12 BT0377 Homo sapiens cDNA   |
| 2535                   | 15600                 |                   | 0.96                 | 2.0E-14                                   | 7657529                  | NT                            | Homo sapiens ribosomal tumor deletion region protein 1 (RTDR1), mRNA   |
| 2593                   | 15718                 | 28835             | 1.03                 | 2.0E-14                                   | AL163209.2               | NT                            | Homo sapiens chromosome 21 segment HS21C008  |
| 5641                   | 18835                 | 31812             | 0.97                 | 2.0E-14                                   | BF380681.1               | EST_HUMAN                     | IL2-UT0072-240800-142-D07 UT0072 Homo sapiens cDNA   |
| 5738                   | 18831                 | 32229             | 1.03                 | 2.0E-14                                   | A312351.1                | EST_HUMAN                     | ta78h01.x2 NCI_CGAP_HSC2 Homo sapiens cDNA clone IMAGE:2050225 3' similar to contains L1.3 L1 repetitive element;                    |
| 5838                   | 19028                 | 32334             | 3                    | 2.0E-14                                   | U01317.1                 | NT                            | Human beta globin region on chromosome 11  |
| 7023                   | 20189                 |                   | 1.04                 | 2.0E-14                                   | BE000550.1               | EST_HUMAN                     | RC3-BN0072-240200-011-a08 BN0072 Homo sapiens cDNA   |
| 7437                   | 20514                 | 33987             | 1.06                 | 2.0E-14                                   | P66163                   | SWISSPROT                     | ZINC-FINGER PROTEIN NEURO-D4   |
| 7676                   | 20741                 | 34221             | 24.48                | 2.0E-14                                   | BE158761.1               | EST_HUMAN                     | IL2-HT0397-071289-024-D04 HT0397 Homo sapiens cDNA   |
| 7678                   | 20741                 | 34222             | 24.48                | 2.0E-14                                   | BE158761.1               | EST_HUMAN                     | IL2-HT0397-071289-024-D04 HT0397 Homo sapiens cDNA   |
| 10121                  | 23159                 | 36758             | 0.56                 | 2.0E-14                                   | A876795.1                | EST_HUMAN                     | wf59g10.x1 NCI_CGAP_U11 Homo sapiens cDNA clone IMAGE:2492034 3' similar to contains Alu repetitive element;                         |
| 10630                  | 23694                 | 37273             | 0.51                 | 2.0E-14                                   | A774164.1                | EST_HUMAN                     | AV741648 CB Homo sapiens cDNA clone C8FB8F04 5'  |
| 11018                  | 24098                 | 37736             | 3.62                 | 2.0E-14                                   | AW139800.1               | EST_HUMAN                     | UI-H-B1-adw-e-10-0-UJ.s1 NCI_CGAP_Sub3 Homo sapiens cDNA clone IMAGE:2718234 3'  |
| 12890                  | 26045                 |                   | 2.5                  | 2.0E-14                                   | AF008191.1               | NT                            | Homo sapiens putative G8 protein (GR6) gene, complete cds  |
| 13163                  | 15680                 |                   | 1.26                 | 2.0E-14                                   | 7657529                  | NT                            | Homo sapiens ribosomal tumor deletion region protein 1 (RTDR1), mRNA   |
| 1062                   | 14257                 | 27313             | 2.32                 | 1.0E-14                                   | AL163246.2               | NT                            | Homo sapiens chromosome 21 segment HS21C046  |
| 1438                   | 14531                 | 27664             | 7.01                 | 1.0E-14                                   | AL163288.2               | NT                            | Homo sapiens chromosome 21 segment HS21C068  |
| 1438                   | 14531                 | 27665             | 7.01                 | 1.0E-14                                   | AL163288.2               | NT                            | Homo sapiens chromosome 21 segment HS21C068  |
| 2057                   | 15198                 | 28312             | 8.9                  | 1.0E-14                                   | L44140.1                 | NT                            | Homo sapiens chromosome X region from filament (FLN) gene to glucose-6-phosphate dehydrogenase (G6PD) gene, complete cds             |
| 2258                   | 15391                 | 28517             | 6.33                 | 1.0E-14                                   | AL163303.2               | NT                            | Homo sapiens chromosome 21 segment HS21C103  |
| 2480                   | 15607                 | 28731             | 6.44                 | 1.0E-14                                   | AF001889.1               | NT                            | Homo sapiens ribosomal protein L23A (RPL23A) gene, complete cds  |
| 3010                   | 16186                 | 28210             | 1.41                 | 1.0E-14                                   | P05227                   | SWISSPROT                     | HISTIDINE-RICH PROTEIN PRECURSOR (CLONE PFHRP-II)  |
| 3236                   | 16410                 | 28424             | 3.14                 | 1.0E-14                                   | BF35227.1                | EST_HUMAN                     | RC2-CT0432-310700-073-a09_1 CT0432 Homo sapiens cDNA   |
| 3236                   | 16410                 | 28425             | 3.14                 | 1.0E-14                                   | BF35227.1                | EST_HUMAN                     | RC2-CT0432-310700-073-a09_1 CT0432 Homo sapiens cDNA   |
| 3692                   | 17149                 | 30155             | 1.69                 | 1.0E-14                                   | AA682984.1               | EST_HUMAN                     | ae89c12.s1 Strabagana schizobrain S11 Homo sapiens cDNA clone IMAGE:871350 3'  |
| 4596                   | 17733                 | 30713             | 2.01                 | 1.0E-14                                   | AW276862.1               | EST_HUMAN                     | xp39h10.x1 NCI_CGAP_L1281 Homo sapiens cDNA clone IMAGE:2753059 3'   |
| 5930                   | 19116                 | 32429             | 1.98                 | 1.0E-14                                   | AF126145.1               | NT                            | Bos taurus xenobiotic/medium-chain fatty acid:CoA ligase form XL-III mRNA, nuclear mRNA encoding mitochondrial protein, complete cds |
| 6813                   | 26834                 | 33371             | 10.9                 | 1.0E-14                                   | 11437150                 | NT                            | Homo sapiens promitin (mouse)-like 1 (PROML1), mRNA  |
| 6813                   | 26834                 | 33372             | 10.9                 | 1.0E-14                                   | 11437150                 | NT                            | Homo sapiens promitin (mouse)-like 1 (PROML1), mRNA  |
| 1607                   | 14760                 | 27839             | 1.81                 | 9.0E-15                                   | 7427622                  | NT                            | Homo sapiens protein tyrosine phosphatase, receptor type, T (PTPRT), mRNA  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 2242                   | 16376                 |                   | 1.38                 | 9.0E-15                                       | AF106779.1               | NT                            | Homo sapiens transcription factor K3H11 protein, JM11 protein, JM4 protein, JM5 protein, T54 protein, JM10 protein, A4 differentiation-dependent protein, triple LIM domain protein 6, and synaptophysin genes, complete cds; and L-type calcium channel $\alpha$ |
| 7666                   | 20732                 | 34207             | 4.24                 | 9.0E-15                                       | P21416                   | SWISSPROT                     | GAG POLYPROTEIN [CONTAINS: CORE PROTEINS P16, P12, P30, P10]  |
| 8206                   | 21288                 | 34810             | 1.24                 | 9.0E-15                                       | BE003599.1               | EST_HUMAN                     | 60167750F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:5960159 5'  |
| 13099                  | 25716                 |                   | 2.87                 | 9.0E-15                                       | AL163247.2               | NT                            | Homo sapiens chromosome 21 segment HS21C047   |
| 2872                   | 13687                 |                   | 1.53                 | 8.0E-15                                       | BE261482.1               | EST_HUMAN                     | 601148632F1 NIH_MGC_19 Homo sapiens cDNA clone IMAGE:3184023 5'   |
| 7301                   | 20412                 | 33874             | 1.19                 | 7.0E-15                                       | BF038327.1               | EST_HUMAN                     | 601458531F1 NIH_MGC_66 Homo sapiens cDNA clone IMAGE:3862088 5'   |
| 10650                  | 23894                 |                   | 2.34                 | 7.0E-15                                       | AW241988.1               | EST_HUMAN                     | bcn71402.x1 Sources_NFL_T_CBC_S1 Homo sapiens cDNA clone IMAGE:2700483 3' similar to contains THR12 THR repetitive element:   |
| 12270                  | 25203                 |                   | 1.44                 | 7.0E-15                                       | AA284465.1               | EST_HUMAN                     | zs57608.r1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:701583 5' similar to gbL21894 STEROL O-ACYLTRANSFERASE (HUMAN); contains L1.L1 L1 repetitive element:  |
| 1018                   | 14180                 | 27250             | 7.51                 | 8.0E-15                                       | AJ271738.1               | NT                            | Homo sapiens Xq pseudautosomal region: segment 2/2  |
| 5283                   | 18382                 |                   | 0.98                 | 6.0E-15                                       | AW601288.1               | EST_HUMAN                     | CMA-NIN1011-100300-110-d10 NN1011 Homo sapiens cDNA   |
| 6041                   | 19224                 | 32546             | 1.02                 | 6.0E-15                                       | X73462.1                 | NT                            | O.aries mRNA for hair keratin cysteine-rich protein   |
| 6041                   | 19224                 | 32547             | 1.02                 | 6.0E-15                                       | X73462.1                 | NT                            | O.aries mRNA for hair keratin cysteine-rich protein   |
| 11683                  | 26231                 |                   | 1.54                 | 6.0E-15                                       | AW838843.1               | EST_HUMAN                     | QV1-LT0038-150200-070-c10 LT0038 Homo sapiens cDNA  |
| 423                    | 13618                 | 26658             | 3.57                 | 5.0E-15                                       | AL163208.2               | NT                            | Homo sapiens chromosome 21 segment HS21C008   |
| 2818                   | 15933                 | 28044             | 1.79                 | 5.0E-15                                       | U81328.1                 | NT                            | Human hereditary haemochromatosis region, histone 2A-like protein gene, hereditary haemochromatosis (HLA-H) gene, RbRef gene, and sodium phosphate transporter (NPT3) gene, complete cds  |
| 5233                   | 18355                 |                   | 0.91                 | 5.0E-15                                       | P11389                   | SWISSPROT                     | RETROVIRUS-RELATED POL POLYPROTEIN [CONTAINS: REVERSE TRANSCRIPTASE ;   |
| 440                    | 13240                 | 28240             | 2.33                 | 4.0E-15                                       | AL163303.2               | NT                            | ENDONUCLEASE]   |
| 6804                   | 19959                 | 33359             | 0.9                  | 4.0E-15                                       | AB007870.1               | NT                            | Homo sapiens chromosome 21 segment HS21C103   |
| 11316                  | 21095                 | 34577             | 2.11                 | 4.0E-15                                       | AJ130884.1               | NT                            | Homo sapiens mRNA, chromosome 1 specific transcript KIAA0501  |
| 11316                  | 21095                 | 34578             | 2.11                 | 4.0E-15                                       | AJ130884.1               | NT                            | Homo sapiens mRNA for transcription factor  |
| 4333                   | 17476                 |                   | 7.57                 | 3.0E-15                                       | N88452.1                 | EST_HUMAN                     | Homo sapiens mRNA for transcription factor  |
| 5141                   | 18264                 | 31232             | 0.57                 | 3.0E-15                                       | AA078097.1               | EST_HUMAN                     | LY1142F Human fetal heart, Lambda ZAP Express Homo sapiens cDNA clone LY1142 5' similar to ANF(CARDIOLIPIN)   |
| 5141                   | 18264                 | 31233             | 0.57                 | 3.0E-15                                       | AA078097.1               | EST_HUMAN                     | 7P01F03 Chromosome 7 Placental cDNA Library Homo sapiens cDNA clone 7P01F03   |
| 6141                   | 18264                 | 31233             | 0.57                 | 3.0E-15                                       | AA078097.1               | EST_HUMAN                     | 7P01F03 Chromosome 7 Placental cDNA Library Homo sapiens cDNA clone 7P01F03   |
| 6953                   | 20268                 |                   | 1.17                 | 3.0E-15                                       | Q64625                   | SWISSPROT                     | GLUTATHIONE PEROXIDASE RY2D1 PRECURSOR (ODORANT-METABOLIZING PROTEIN RY2D1)   |
| 7430                   | 20507                 | 33978             | 3.13                 | 3.0E-15                                       | M27685.1                 | NT                            | Mus musculus ultra high sulfur keratin gene, complete cds   |
| 7430                   | 20507                 | 33979             | 3.13                 | 3.0E-15                                       | M27685.1                 | NT                            | Mus musculus ultra high sulfur keratin gene, complete cds   |



Page 238 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 10126                  | 23167                 |                   | 2.38                 | 3.0E-15                                       | AA807128.1               | EST_HUMAN                     | cc38d07.s1 NCI_OGAP_GCB1 Homo sapiens cDNA clone IMAGE:1351764 3' similar to contains MER19.11<br>MER19 repetitive element: |
| 11033                  | 24112                 | 37748             | 8.11                 | 3.0E-15                                       | AB028898.1               | NT                            | Homo sapiens DNA, DLEC1 to ORCTL4 gene region, section 1/2 (DLEC1, ORCTL3, ORCTL4 genes,<br>complete cds)                   |
| 12620                  | 26081                 |                   | 85.8                 | 3.0E-15                                       | AJ271735.1               | NT                            | Homo sapiens Xq pseudautosomal region; segment 1/2  |
| 260                    | 13479                 | 26511             | 3.71                 | 2.0E-15                                       | AF223391.1               | NT                            | Homo sapiens calcium channel alpha1E subunit (CACNA1E) gene, exons 7-49, and partial cds, alternatively<br>spliced          |
| 379                    | 13587                 | 26621             | 3.28                 | 2.0E-15                                       | AF223391.1               | NT                            | Homo sapiens calcium channel alpha1E subunit (CACNA1E) gene, exons 7-49, and partial cds, alternatively<br>spliced          |
| 379                    | 13587                 | 26622             | 3.28                 | 2.0E-15                                       | AF223391.1               | NT                            | Homo sapiens calcium channel alpha1E subunit (CACNA1E) gene, exons 7-49, and partial cds, alternatively<br>spliced          |
| 1509                   | 14712                 |                   | 0.99                 | 2.0E-15                                       | AF223391.1               | NT                            | Homo sapiens hypothetical protein FLJ20212 (FLJ20212), mRNA   |
| 3509                   | 16763                 | 29778             | 0.72                 | 2.0E-15                                       | AF223391.1               | NT                            | Homo sapiens calcium channel alpha1E subunit (CACNA1E) gene, exons 7-49, and partial cds, alternatively<br>spliced          |
| 3509                   | 16763                 | 29779             | 0.72                 | 2.0E-15                                       | AF223391.1               | NT                            | Homo sapiens calcium channel alpha1E subunit (CACNA1E) gene, exons 7-49, and partial cds, alternatively<br>spliced          |
| 4745                   | 17880                 |                   | 2.76                 | 2.0E-15                                       | AB00335.1                | EST_HUMAN                     | wf07709.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2348923 3' similar to TR-Q81049<br>Q81043 NINEIN.;             |
| 6311                   | 19483                 | 32838             | 1.11                 | 2.0E-15                                       | BE662352.1               | EST_HUMAN                     | 601344253F1 NIH_MGC_8 Homo sapiens cDNA clone IMAGE:3677268 5'  |
| 6311                   | 19483                 | 32839             | 1.11                 | 2.0E-15                                       | BE662362.1               | EST_HUMAN                     | 601344253F1 NIH_MGC_8 Homo sapiens cDNA clone IMAGE:3677268 5'  |
| 7263                   | 20349                 |                   | 1.58                 | 2.0E-15                                       | AJ400877.1               | NT                            | Homo sapiens ASCL3 gene, OEGP1 gene, C11orf14 gene, C11orf15 gene, C11orf16 gene and C11orf17<br>gene                       |
| 7421                   | 20498                 | 33969             | 2.73                 | 2.0E-15                                       | AA704195.1               | EST_HUMAN                     | z177603.s1 Soares_fetal_liver_spleen_1NFSL_S1 Homo sapiens cDNA clone IMAGE:400824 3'                                       |
| 7654                   | 20628                 | 34102             | 5.05                 | 2.0E-15                                       | W05084.1                 | EST_HUMAN                     | z177610.r1 Soares_fetal_liver_spleen_1NFSL_S1 Homo sapiens cDNA clone IMAGE:400824 3'                                       |
| 9107                   | 22186                 | 35730             | 2.86                 | 2.0E-15                                       | D14847.1                 | NT                            | WP-F44F-4.8 CE02227 TRANSPOSASE;  |
| 9273                   | 22349                 | 35899             | 0.91                 | 2.0E-15                                       | AA397758.1               | EST_HUMAN                     | Human DNA, SINE repetitive element  |
| 9273                   | 22349                 | 35900             | 0.91                 | 2.0E-15                                       | AA397758.1               | EST_HUMAN                     | z177608.r1 Soares_testis_NHT_Homo sapiens cDNA clone IMAGE:728414 5'  |
| 9804                   | 22659                 | 36231             | 1.18                 | 2.0E-15                                       | AW379465.1               | EST_HUMAN                     | z177609.r1 Soares_testis_NHT_Homo sapiens cDNA clone IMAGE:728414 5'  |
| 9804                   | 22659                 | 36232             | 1.18                 | 2.0E-15                                       | AW379465.1               | EST_HUMAN                     | GN0-HT0244-201089-078-r12 HT0244 Homo sapiens cDNA  |
| 11077                  | 24152                 |                   | 3.89                 | 2.0E-15                                       | AJ271735.1               | NT                            | GN0-HT0244-201089-078-r12 HT0244 Homo sapiens cDNA  |
| 13016                  | 16763                 | 29778             | 3.89                 | 2.0E-15                                       | AF223391.1               | NT                            | Homo sapiens Xq pseudautosomal region; segment 1/2  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens calcium channel alpha1E subunit (CACNA1E) gene, exons 7-49, and partial cds, alternatively<br>spliced          |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 13016                  | 16783                 | 29779             | 3.89                 | 2.0E-15                                       | AF223391.1               | NT                            | Homo sapiens calcium channel alpha1E subunit (CACNA1E) gene, exons 7-49, and partial cds, alternatively spliced |
| 2834                   | 15948                 |                   | 3.08                 | 1.0E-15                                       | AI688984.1               | EST_HUMAN                     | bc28h05.x1 NCL CGAP_L124 Homo sapiens cDNA clone IMAGE:2270745 3' similar to TR-Q19639 Q19639                   |
| 3077                   | 16253                 | 29275             | 1.42                 | 1.0E-15                                       | BE043584.1               | EST_HUMAN                     | MARINER TRANSPOSASE. ;  |
| 3211                   | 16385                 | 29398             | 1.18                 | 1.0E-15                                       | P08547                   | SWISSPROT                     | IK40e02.y1 NCL CGAP_Ov34 Homo sapiens cDNA clone IMAGE:2898162 5'   |
| 4479                   | 17819                 | 30601             | 0.81                 | 1.0E-15                                       | BE182698.1               | EST_HUMAN                     | LINE-1 REVERSE TRANSCRIPTASE HOMOLOG  |
| 6502                   | 18688                 | 33032             | 1.72                 | 1.0E-15                                       | T95763.1                 | EST_HUMAN                     | RC3-HT0849-100500-022-005 HT0849 Homo sapiens cDNA  |
| 7149                   | 20284                 |                   | 1.98                 | 1.0E-15                                       | BE074217.1               | EST_HUMAN                     | ye40e10.a1 Scores fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:120234 3' similar to contains          |
| 7184                   | 20048                 | 33460             | 0.78                 | 1.0E-15                                       | P39057                   | SWISSPROT                     | MER6 repetitive element ;   |
| 8427                   | 21508                 | 35040             | 0.99                 | 1.0E-15                                       | AL163280.2               | NT                            | QV3-BT0568-270100-074-g05 BT0568 Homo sapiens cDNA  |
| 8816                   | 21895                 | 35232             | 4.94                 | 1.0E-15                                       | AL200976.1               | EST_HUMAN                     | DYNEIN BETA CHAIN, CILIARY  |
| 8815                   | 21895                 | 35233             | 4.94                 | 1.0E-15                                       | AL200978.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C080   |
| 8239                   | 22316                 | 36858             | 0.78                 | 1.0E-15                                       | AL163207.2               | NT                            | qf68h06.x1 Scores_testis_NHT Homo sapiens cDNA clone IMAGE:1755227 3'   |
| 8242                   | 22319                 | 36862             | 0.98                 | 1.0E-15                                       | 4507208                  | NT                            | qf68h06.x1 Scores_testis_NHT Homo sapiens cDNA clone IMAGE:1755227 3'   |
| 9448                   | 22594                 | 36127             | 0.99                 | 1.0E-15                                       | Q39575                   | SWISSPROT                     | Homo sapiens chromosome 21 segment HS21C007   |
| 9832                   | 22872                 | 36455             | 0.94                 | 1.0E-15                                       | AA864653.1               | EST_HUMAN                     | Homo sapiens spermidine synthase (SRM) mRNA   |
| 11057                  | 24134                 | 37770             | 3.04                 | 1.0E-15                                       | AF044083.1               | NT                            | DYNEIN GAMMA CHAIN, FLAGELLAR OUTER ARM   |
| 13104                  | 25992                 | 31856             | 13.05                | 1.0E-15                                       | AI783944.1               | EST_HUMAN                     | ch37e03.e1 NCL CGAP_Kid6 Homo sapiens cDNA clone IMAGE:1459872 3' similar to contains L1.13 L1                  |
| 4628                   | 17762                 | 30744             | 0.93                 | 9.0E-16                                       | 4503168                  | NT                            | Homo sapiens major histocompatibility locus class III region  |
| 11241                  | 24310                 | 37847             | 1.41                 | 9.0E-16                                       | F08688.1                 | EST_HUMAN                     | repetitive element ;  |
| 11895                  | 24980                 | 38885             | 1.48                 | 9.0E-16                                       | AI244341.1               | EST_HUMAN                     | IC31C05.x1 NCL CGAP_Ov23 Homo sapiens cDNA clone IMAGE:2218912 3' similar to contains Alu repetitive            |
| 11895                  | 24980                 | 38886             | 1.48                 | 9.0E-16                                       | AI244341.1               | EST_HUMAN                     | element   |
| 5819                   | 19009                 | 32315             | 0.85                 | 7.0E-16                                       | 4885120                  | NT                            | Homo sapiens cut (Drosophila)-like 1 (CCAAAT displacement protein)(CUTL1) mRNA                                  |
| 7486                   | 20571                 | 34043             | 1.3                  | 7.0E-16                                       | O88807                   | SWISSPROT                     | HSC23F051 normalized infant brain cDNA Homo sapiens cDNA clone c-23F05  |
| 7498                   | 20571                 | 34044             | 1.3                  | 7.0E-16                                       | O88807                   | SWISSPROT                     | q76a02.x1 NCL CGAP_Kid3 Homo sapiens cDNA clone IMAGE:1865354 3' similar to contains MER10.13                   |
| 19043                  | 25995                 |                   | 38.08                | 7.0E-16                                       | T84149.1                 | EST_HUMAN                     | MER10 repetitive element ;  |
|                        |                       |                   |                      |   |                          |                               | q76a02.x1 NCL CGAP_Kid3 Homo sapiens cDNA clone IMAGE:1865354 3' similar to contains MER10.13                   |
|                        |                       |                   |                      |   |                          |                               | MER10 repetitive element ;  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens chemokine (C-C motif) receptor 8 (CCR8) mRNA   |
|                        |                       |                   |                      |   |                          |                               | PROTEIN-ARGININE DEIMINASE TYPE IV (PEPTIDYLARGININE DEIMINASE IV)(PAD-R4)                                      |
|                        |                       |                   |                      |   |                          |                               | (PEPTIDYLARGININE DEIMINASE TYPE ALPHA)   |
|                        |                       |                   |                      |   |                          |                               | PROTEIN-ARGININE DEIMINASE TYPE IV (PEPTIDYLARGININE DEIMINASE IV)(PAD-R4)                                      |
|                        |                       |                   |                      |   |                          |                               | (PEPTIDYLARGININE DEIMINASE TYPE ALPHA)   |
|                        |                       |                   |                      |   |                          |                               | ye28c12.f1 Stratiogene lung (4637210) Homo sapiens cDNA clone IMAGE:118082 5'                                   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 2208                   | 15342                 |                   | 9.12                 | 6.0E-16                                       | AW972611.1               | EST_HUMAN                     | EST384702 IMAGE:resseques, MAGL Homo sapiens cDNA  |
| 1522                   | 14875                 | 27757             | 0.86                 | 5.0E-16                                       | AJ251154.1               | NT                            | Mus musculus olfactory receptor cluster, OR37A, OR37B, OR37C, OR37E genes and OR37D pseudogene       |
| 2745                   | 15862                 | 28973             | 2.21                 | 5.0E-16                                       | AA922178.1               | EST_HUMAN                     | cd80c04.s1 Soares total_fetus_Nb21F8_9w Homo sapiens cDNA clone IMAGE:1623078 3' similar to          |
| 11809                  | 24709                 | 38498             | 2.68                 | 5.0E-16                                       | BF217388.1               | EST_HUMAN                     | contains element L1 repetitive element:  |
| 13152                  | 25749                 |                   | 14.16                | 5.0E-16                                       | 11418127                 | NT                            | 601885734F1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:4104129 5'                                      |
| 2312                   | 15444                 |                   | 1.01                 | 4.0E-16                                       | AB001623.1               | NT                            | Homo sapiens GTP binding protein 1 (GTPBP1), mRNA  |
| 2463                   | 15581                 | 28708             | 2.87                 | 4.0E-16                                       | AW787168.1               | EST_HUMAN                     | Homo sapiens gene for TMEM1 and PWP2, complete and partial cds                                       |
| 2453                   | 15581                 | 28708             | 2.87                 | 4.0E-16                                       | AW787168.1               | EST_HUMAN                     | QV1-UM0036-200300-115-g02 UM0036 Homo sapiens cDNA   |
| 3546                   | 16711                 | 29722             | 5.29                 | 4.0E-16                                       | Q16633                   | SWISSPROT                     | QV1-UM0036-200300-115-g02 UM0036 Homo sapiens cDNA   |
| 4280                   | 17405                 | 30391             | 8.68                 | 4.0E-16                                       | BE083875.1               | EST_HUMAN                     | MYELIN-OLIGODENDROCYTE GLYCOPROTEIN PRECURSOR  |
| 4280                   | 17405                 | 30392             | 6.68                 | 4.0E-16                                       | BE083875.1               | EST_HUMAN                     | PMA-BT0650-010400-002-g09 BT0650 Homo sapiens cDNA   |
| 5257                   | 18377                 | 31343             | 0.91                 | 4.0E-16                                       | P08548                   | SWISSPROT                     | PMA-BT0650-010400-002-g09 BT0650 Homo sapiens cDNA   |
| 7890                   | 20942                 | 34448             | 42.68                | 4.0E-16                                       | AL163284.2               | NT                            | LINE-1 REVERSE TRANSCRIPTASE HOMOLOG   |
| 9495                   | 22552                 | 36114             | 0.72                 | 4.0E-16                                       | 11423181                 | NT                            | Homo sapiens chromosome 21 segment HS21C084  |
| 12293                  | 25218                 |                   | 1.95                 | 4.0E-16                                       | P08548                   | SWISSPROT                     | Homo sapiens hypothetical protein FLJ10024 (FLJ10024), mRNA  |
| 12381                  | 25270                 |                   | 8.68                 | 4.0E-16                                       | C05947.1                 | EST_HUMAN                     | LINE-1 REVERSE TRANSCRIPTASE HOMOLOG   |
| 12392                  | 25277                 | 32079             | 3.23                 | 4.0E-16                                       | 6912469                  | EST_HUMAN                     | C05947 Human pancreatic islet Homo sapiens cDNA clone hbc5355  |
| 12682                  | 25454                 |                   | 1.33                 | 4.0E-16                                       | R18591.1                 | EST_HUMAN                     | Homo sapiens Gb2-associated binder 2 (KIAA0571), mRNA  |
| 135                    | 13361                 | 26395             | 1.09                 | 3.0E-16                                       | AW022862.1               | EST_HUMAN                     | y86b11.t1 Soares Infant brain INIB Homo sapiens cDNA clone IMAGE:30489 5'                            |
| 135                    | 13361                 | 26396             | 1.08                 | 3.0E-16                                       | AW022862.1               | EST_HUMAN                     | df45c01.y1 Morton Fetal Cochlea Homo sapiens cDNA clone IMAGE:2486378 5'                             |
| 478                    | 13673                 |                   | 1.68                 | 3.0E-16                                       | AL046445.1               | EST_HUMAN                     | df45c01.y1 Morton Fetal Cochlea Homo sapiens cDNA clone IMAGE:2486378 5'                             |
| 488                    | 13682                 |                   | 2.33                 | 3.0E-16                                       | AF135448.1               | NT                            | DKFZp434P037.t1 434 (synonym: hhes3) Homo sapiens cDNA clone DKFZp434P037 5'                         |
| 1483                   | 14836                 | 27720             | 2.73                 | 3.0E-16                                       | Q28983                   | SWISSPROT                     | Homo sapiens TSX (TSX) pseudogene, exon 5  |
| 3041                   | 16217                 | 28237             | 4.71                 | 3.0E-16                                       | P03200                   | SWISSPROT                     | ZONADHESIN PRECURSOR   |
| 4711                   | 17846                 | 30830             | 0.59                 | 3.0E-16                                       | AW160828.1               | EST_HUMAN                     | ENVELOPE GLYCOPROTEIN GP340 (MEMBRANE ANTIGEN) (MA) [CONTAINS: GLYCOPROTEIN                          |
| 5057                   | 16185                 | 31160             | 1.32                 | 3.0E-16                                       | AY661393.1               | EST_HUMAN                     | GP220]   |
| 5392                   | 18394                 |                   | 0.89                 | 3.0E-16                                       | AA077225.1               | EST_HUMAN                     | au176b08.y1 Schneider fetal brain 00004 Homo sapiens cDNA clone IMAGE:2762163 5' similar to          |
| 5734                   | 18927                 | 32223             | 1.67                 | 3.0E-16                                       | AF003529.1               | NT                            | SW-KID1_MOUSE Q81751 RENAL TRANSCRIPTION FACTOR KID-1;   |
| 8858                   | 21837                 | 35473             | 4.25                 | 3.0E-16                                       | AI002836.1               | EST_HUMAN                     | AV661393 GLC Homo sapiens cDNA clone GLCGSA01 3'   |
|                        |                       |                   |                      |   |                          |                               | 7B10F02 Chromosome 7 Fetal Brain cDNA Library Homo sapiens cDNA clone 7B10F02                        |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens glypican 3 (GPC3) gene, partial cds and flanking repeat regions                         |
|                        |                       |                   |                      |   |                          |                               | am98h05.s1 Strategene scrtico brain S11 Homo sapiens cDNA clone IMAGE:1684185 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | TI-FR.2 THR repetitive element:  |

Page 241 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 10094                  | 23132                 |                   | 1.09                 | 3.0E-16                                       | BF690617.1               | EST_HUMAN                     | 60224653BF1 NIH_MGC_62 Homo sapiens cDNA clone IMAGE:4332032 5'                                     |
| 10324                  | 23359                 | 36969             | 2.59                 | 3.0E-16                                       | L78910.1                 | NT                            | Homo sapiens ADP/ATP carrier protein (ANT-2) gene, complete cds                                     |
| 13187                  | 26171                 | 31557             | 3.62                 | 3.0E-16                                       | AL043268.2               | EST_HUMAN                     | DKFZp434L1623_1 434 (synonym: htec3) Homo sapiens cDNA clone DKFZp434L1623 5'                       |
| 904                    | 14168                 |                   | 1.03                 | 2.0E-16                                       | AL163279.2               | NT                            | Homo sapiens chromosome 21 segment HS21C079   |
| 2459                   | 15598                 |                   | 0.96                 | 2.0E-16                                       | AA621761.1               | EST_HUMAN                     | af06cd4.s1 Soares testis_NHT Homo sapiens cDNA clone IMAGE:1030855 3'                               |
| 2753                   | 15870                 |                   | 1.14                 | 2.0E-16                                       | J03061.1                 | NT                            | Human SSAN-related endogenous retroviral LTR-like element   |
| 4294                   | 17437                 | 30424             | 1.62                 | 2.0E-16                                       | X89211.1                 | NT                            | H. sapiens DNA for endogenous retroviral like element   |
| 4603                   | 17740                 | 30718             | 1.27                 | 2.0E-16                                       | AL208733.1               | EST_HUMAN                     | cg56003.x1 Soares testis_NHT Homo sapiens cDNA clone IMAGE:1839187 3' similar to contains MER28.13  |
| 5269                   | 18416                 | 31385             | 0.64                 | 2.0E-16                                       | BE061176.1               | EST_HUMAN                     | MER29 repetitive element;   |
| 6880                   | 20032                 | 33442             | 0.68                 | 2.0E-16                                       | Q31125                   | SWISSPROT                     | RC3-BT0046-131199-003-H12 BT0046 Homo sapiens cDNA  |
| 7683                   | 20945                 | 34451             | 0.98                 | 2.0E-16                                       | AA70723.1                | EST_HUMAN                     | HISTIDINE-RICH PROTEIN KE4  |
|                        |                       |                   |                      |   |                          |                               | g16b11.x1 NC1_CGAP_Gas4 Homo sapiens cDNA clone IMAGE:2141708 3' similar to contains element        |
|                        |                       |                   |                      |   |                          |                               | MER33 repetitive element;   |
| 8154                   | 21236                 | 34757             | 1.57                 | 2.0E-16                                       | AF32837.1                | EST_HUMAN                     | nz4706.x5 NC1_CGAP_P12 Homo sapiens cDNA clone IMAGE:1280947 similar to TR:O54849 O54849            |
| 8352                   | 21433                 | 34957             | 0.81                 | 2.0E-16                                       | BE658026.1               | EST_HUMAN                     | HYPOPHETICAL 42.9 KD PROTEIN, [2] TR:O08905; contains MER7.11 MER7 repetitive element;              |
| 8352                   | 21433                 | 34958             | 0.81                 | 2.0E-16                                       | BE658026.1               | EST_HUMAN                     | 782h08.x1 NC1_CGAP_P128 Homo sapiens cDNA clone IMAGE:3303521 3'                                    |
| 8724                   | 21804                 | 35340             | 0.78                 | 2.0E-16                                       | AW877214.1               | EST_HUMAN                     | 782h08.x1 NC1_CGAP_P128 Homo sapiens cDNA clone IMAGE:3303521 3'                                    |
| 8724                   | 21804                 | 35341             | 0.78                 | 2.0E-16                                       | AW877214.1               | EST_HUMAN                     | GM4-PT0034-180200-508-a01 PT0034 Homo sapiens cDNA  |
| 189                    | 13411                 | 26438             | 2.28                 | 1.0E-16                                       | AF200719.1               | NT                            | GM4-PT0034-180200-508-a01 PT0034 Homo sapiens cDNA  |
| 383                    | 13630                 |                   | 22.93                | 1.0E-16                                       | AJ628592.1               | EST_HUMAN                     | Homo sapiens pituitary tumor transforming gene protein (PTTG) gene, complete cds                    |
| 2028                   | 15169                 | 28276             | 3.42                 | 1.0E-16                                       | BF327942.1               | EST_HUMAN                     | af39g11.s1 Soares testis_NHT testis_NHT2-IF8_9w Homo sapiens cDNA clone IMAGE:1034084 3' similar to |
| 5839                   | 18026                 | 32335             | 0.6                  | 1.0E-16                                       | AF163884.1               | NT                            | contains ORF.12 ORF repetitive element;   |
| 6565                   | 19727                 |                   | 18                   | 1.0E-16                                       | U45983.1                 | NT                            | QV6-BN0148-070700-293-a10 BN0148 Homo sapiens cDNA  |
| 6704                   | 19862                 | 33252             | 2.96                 | 1.0E-16                                       | Q02779                   | SWISSPROT                     | Homo sapiens SNCA isoform (SNCA) gene, complete cds, alternatively spliced                          |
| 7726                   | 19727                 |                   | 5.39                 | 1.0E-16                                       | U46983.1                 | NT                            | Homo sapiens CCR8 chemokine receptor (CMKOR8) gene, complete cds                                    |
| 8483                   | 22540                 | 36103             | 0.81                 | 1.0E-16                                       | AW875651.1               | EST_HUMAN                     | MITOGEN-ACTIVATED PROTEIN KINASE KINASE 10 (MIXED LINEAGE KINASE 2) (PROTEIN KINASE MST)            |
| 3832                   | 16962                 | 26994             | 2.08                 | 9.0E-17                                       | AW800048.1               | EST_HUMAN                     | Homo sapiens CCR8 chemokine receptor (CMKOR8) gene, complete cds                                    |
| 6884                   | 20016                 |                   | 2.15                 | 9.0E-17                                       | AJ392984.1               | EST_HUMAN                     | QV2-PT0012-040400-124-a05 PT0012 Homo sapiens cDNA  |
|                        |                       |                   |                      |   |                          |                               | GM7-NN1003-200300-163-a01 NN1003 Homo sapiens cDNA  |
|                        |                       |                   |                      |   |                          |                               | tg22c11.x1 NC1_CGAP_CL11 Homo sapiens cDNA clone IMAGE:2108524 3' similar to contains MER28.12      |
|                        |                       |                   |                      |   |                          |                               | MER28 repetitive element;   |

Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 8288                   | 21381                 |                   | 3.56                 | 9.0E-17                                       | AW160287.1               | EST_HUMAN                     | xq49g12.x1 NCI_CGAP_Ut1 Homo sapiens cDNA clone IMAGE:2630950 3' similar to contains ORF.12 OFR<br>repetitive element;   |
| 10429                  | 23484                 |                   | 2.35                 | 9.0E-17                                       | AF200718.1               | NT                            | Homo sapiens pituitary tumor transforming gene protein (PTTG) gene, complete cds   |
| 1043                   | 14209                 |                   | 2.43                 | 8.0E-17                                       | AW880701.1               | EST_HUMAN                     | QV0-OT0032-080300-155-01 OT0032 Homo sapiens cDNA  |
| 3968                   | 17155                 |                   | 0.78                 | 8.0E-17                                       | AL163280.2               | NT                            | Homo sapiens chromosome 21 segment HS21C080  |
| 5701                   | 25809                 | 32187             | 4.09                 | 8.0E-17                                       | BE172081.1               | EST_HUMAN                     | MR0-HT0559-080300-003-e04 HT0559 Homo sapiens cDNA   |
| 7425                   | 20502                 |                   | 1.73                 | 8.0E-17                                       | AV780769.1               | EST_HUMAN                     | AV780759 HTF Homo sapiens cDNA clone HTFAQB07 5'   |
| 1487                   | 14840                 |                   | 2.58                 | 7.0E-17                                       | 6753087                  | NT                            | Mus musculus apolipoprotein B editing complex 2 (ApoBec2), mRNA  |
| 5438                   | 18638                 |                   | 3.11                 | 7.0E-17                                       | AF210850.1               | NT                            | Homo sapiens putative MTAP (MTAP) mRNA, partial cds, alternatively spliced   |
| 6828                   | 19979                 | 33387             | 7.91                 | 7.0E-17                                       | AF220843.1               | NT                            | Mus musculus WNT-2 gene, partial cds; putative ankyrin-related protein and cystic fibrosis transmembrane<br>conductance regulator (CFTR) genes, section 1 of 2 of the complete cds; and unknown gene |
| 208                    | 13431                 | 28463             | 5.82                 | 6.0E-17                                       | AW883880.1               | EST_HUMAN                     | RC1-HN0003-220300-021-504 HN0003 Homo sapiens cDNA   |
| 8443                   | 19810                 | 32973             | 2.06                 | 8.0E-17                                       | AW682772.1               | EST_HUMAN                     | h81004.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2878595 3' similar to contains L1.12<br>L1 repetitive element;   |
| 10499                  | 23534                 | 37144             | 0.54                 | 6.0E-17                                       | P20138                   | SWISSPROT                     | MYELOID CELL SURFACE ANTIGEN CD33 PRECURSOR (GP67)   |
| 434                    | 13234                 | 28234             | 2.37                 | 5.0E-17                                       | T84110.1                 | EST_HUMAN                     | yc05h08.l1 Strabagene lung (#837210) Homo sapiens cDNA clone IMAGE:79839 5'  |
| 7759                   | 20818                 | 34308             | 1.81                 | 6.0E-17                                       | T81043.1                 | EST_HUMAN                     | y428h04.l1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:109327 5'   |
| 8582                   | 22704                 | 38270             | 1.32                 | 4.0E-17                                       | AW128165.1               | EST_HUMAN                     | px20h04.x1 NCI_CGAP_Ku8 Homo sapiens cDNA clone IMAGE:2818822 3' similar to contains Alu repetitive<br>element; contains MER19.b1 MER19 repetitive element;  |
| 11783                  | 24773                 | 39469             | 2.51                 | 4.0E-17                                       | AL163247.2               | NT                            | Homo sapiens chromosome 21 segment HS21C047  |
| 12308                  | 25236                 |                   | 1.82                 | 4.0E-17                                       | AD79548.1                | EST_HUMAN                     | ov45h04.x1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:1640288 3' similar to TR.Q16530   |
| 2165                   | 15300                 | 28426             | 1.85                 | 3.0E-17                                       | AW119123.1               | EST_HUMAN                     | O18530 PMS3 mRNA; contains MER10.12 MER10 repetitive element;  |
| 3263                   | 16437                 |                   | 1.17                 | 3.0E-17                                       | P36410                   | SWISSPROT                     | pd89c09.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2804784 3'  |
| 3732                   | 16893                 | 28897             | 1.91                 | 3.0E-17                                       | BE326522.1               | EST_HUMAN                     | MAS-RELATED G PROTEIN-COUPLED RECEPTOR MRG   |
| 3732                   | 16893                 | 28898             | 1.91                 | 3.0E-17                                       | BE326522.1               | EST_HUMAN                     | hw05h04.x1 NCI_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3181988 3'  |
|                        |                       |                   |                      |   |                          | EST_HUMAN                     | hw05h04.x1 NCI_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3181988 3'  |
| 8463                   | 21644                 | 35074             | 1.12                 | 3.0E-17                                       | N68451.1                 | EST_HUMAN                     | zai14b02.s1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:282491 3' similar to contains<br>PTR5.13 PTR5 repetitive element;  |
| 8903                   | 22943                 | 36528             | 5.19                 | 3.0E-17                                       | AB020898.1               | NT                            | Homo sapiens DNA, DLEC1 to ORCTL4 gene region, section 1/2 (DLEC1, ORCTL3, ORCTL4 genes,<br>complete cds)  |
| 10591                  | 23626                 | 37234             | 0.72                 | 3.0E-17                                       | BF327012.1               | EST_HUMAN                     | QV3-BN0047-270700-283-e12 BN0047 Homo sapiens cDNA   |
| 10591                  | 23626                 | 37235             | 0.72                 | 3.0E-17                                       | BF327012.1               | EST_HUMAN                     | QV3-BN0047-270700-283-e12 BN0047 Homo sapiens cDNA   |
| 12268                  | 25201                 |                   | 4.2                  | 3.0E-17                                       | 11417988                 | NT                            | Homo sapiens SEC14 (S. cerevisiae)-like 2 (SEC14L2), mRNA  |

Page 243 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 13155                  | 25751                 |                   | 1.23                 | 3.0E-17                                       | AV720204.1               | EST_HUMAN                     | AV720204 GLC Homo sapiens cDNA clone GLODIF08 5'   |
| 383                    | 13574                 | 28605             | 2.05                 | 2.0E-17                                       | AL270080.1               | EST_HUMAN                     | q63a08.x1 NCI_CGAP_Eso2 Homo sapiens cDNA clone IMAGE:1065822 3' similar to contains Alu repetitive element                      |
| 384                    | 13574                 | 28605             | 2.78                 | 2.0E-17                                       | AL270080.1               | EST_HUMAN                     | q63a06.x1 NCI_CGAP_Eso2 Homo sapiens cDNA clone IMAGE:1065822 3' similar to contains Alu repetitive element                      |
| 1012                   | 14184                 |                   | 1.43                 | 2.0E-17                                       | AA722832.1               | EST_HUMAN                     | zq81d04.s1 Soares fetal heart NBHH19W Homo sapiens cDNA clone IMAGE:369751 3'  |
| 2518                   | 15844                 | 28765             | 2.58                 | 2.0E-17                                       | Q28983                   | SWISSPROT                     | ZONADHESIN PRECURSOR   |
| 2518                   | 15844                 | 28765             | 2.59                 | 2.0E-17                                       | Q28983                   | SWISSPROT                     | ZONADHESIN PRECURSOR   |
| 2886                   | 18172                 | 28191             | 6.98                 | 2.0E-17                                       | P12038                   | SWISSPROT                     | NEUROFILAMENT TRIPLET-H PROTEIN (200 KDA NEUROFILAMENT PROTEIN) (NEUROFILAMENT HEAVY POLYPEPTIDE) (NF-H)                         |
| 5482                   | 18681                 | 31696             | 1.75                 | 2.0E-17                                       | M27685.1                 | NT                            | Mus musculus ultra high sulfur keratin gene, complete cds  |
| 5482                   | 18681                 | 31697             | 1.75                 | 2.0E-17                                       | M27685.1                 | NT                            | Mus musculus ultra high sulfur keratin gene, complete cds  |
| 8394                   | 18683                 |                   | 1.92                 | 2.0E-17                                       | AF055068.1               | NT                            | Homo sapiens MHC class 1 region  |
| 6818                   | 19779                 |                   | 1.39                 | 2.0E-17                                       | AL134881.1               | EST_HUMAN                     | DKFZp762J0610.J1 762 (synonym: hmel2) Homo sapiens cDNA clone DKFZp762J0610 5'   |
| 8008                   | 21058                 | 34588             | 0.89                 | 2.0E-17                                       | AB037839.1               | NT                            | Homo sapiens mRNA for KIAA1418 protein, partial cds  |
| 8276                   | 21357                 | 34875             | 1.24                 | 2.0E-17                                       | Q95158                   | SWISSPROT                     | OLFAGTORY RECEPTOR-LIKE PROTEIN OLF3   |
| 8651                   | 21731                 | 35270             | 1.05                 | 2.0E-17                                       | AA300640.1               | EST_HUMAN                     | EST13504 Testis tumor Homo sapiens cDNA 5' and similar to similar to glycogenin  |
| 10073                  | 23111                 | 38715             | 2.71                 | 2.0E-17                                       | BE288888.1               | EST_HUMAN                     | 600844680F1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:288888 5'   |
| 10108                  | 23146                 | 38744             | 3.53                 | 2.0E-17                                       | AL163247.2               | NT                            | Homo sapiens chromosome 21 segment HS21C047  |
| 10108                  | 23146                 | 38745             | 3.53                 | 2.0E-17                                       | AL163247.2               | NT                            | Homo sapiens chromosome 21 segment HS21C047  |
| 10468                  | 23501                 | 37114             | 5.02                 | 2.0E-17                                       | D13391.1                 | NT                            | Human CYP19 gene for aromatase cytochrome P-450, promoter region (containing two cis-acting transcriptional regulatory elements) |
| 10580                  | 23825                 | 37232             | 0.97                 | 2.0E-17                                       | P98063                   | SWISSPROT                     | BONE MORPHOGENETIC PROTEIN 1 PRECURSOR (BMP-1)   |
| 10590                  | 23825                 | 37233             | 0.97                 | 2.0E-17                                       | P98063                   | SWISSPROT                     | BONE MORPHOGENETIC PROTEIN 1 PRECURSOR (BMP-1)   |
| 10618                  | 23852                 | 37261             | 0.93                 | 2.0E-17                                       | AF788902.1               | EST_HUMAN                     | wes94b04.x1 Soares_NFL_T_GBC S1 Homo sapiens cDNA clone IMAGE:2348719 3'   |
| 10618                  | 23852                 | 37262             | 0.93                 | 2.0E-17                                       | AF788902.1               | EST_HUMAN                     | wes94b04.x1 Soares_NFL_T_GBC S1 Homo sapiens cDNA clone IMAGE:2348719 3'   |
| 769                    | 13960                 | 28699             | 2.79                 | 1.0E-17                                       | P08183                   | SWISSPROT                     | MULTIDRUG RESISTANCE PROTEIN 1 (P-GLYCOPROTEIN 1)  |
| 1745                   | 14894                 |                   | 2.01                 | 1.0E-17                                       | AJ271738.1               | NT                            | Homo sapiens Xq pseudautosomal region; segment 2/2   |
| 1807                   | 14956                 | 28050             | 4.83                 | 1.0E-17                                       | AL163207.2               | NT                            | Homo sapiens chromosome 21 segment HS21C007  |
| 2184                   | 15319                 | 28445             | 2.05                 | 1.0E-17                                       | P02461                   | SWISSPROT                     | COLLAGEN ALPHA 1(III) CHAIN PRECURSOR  |
| 2412                   | 15642                 | 28689             | 3.18                 | 1.0E-17                                       | U70410.1                 | NT                            | Homo sapiens thrombospondin 2 (THBS2) gene, promoter region and exons 1A and 1B  |
| 9557                   | 16820                 |                   | 1.03                 | 1.0E-17                                       | AF224688.1               | NT                            | Homo sapiens mannosidase, beta A, lysosomal (MANBA) gene, and ubiquitin-conjugating enzyme E2D 3 (UBE2D3) genes, complete cds    |
| 4258                   | 17401                 |                   | 9.42                 | 1.0E-17                                       | R08942.1                 | EST_HUMAN                     | Y50e07.J1 Soares fetal liver spleen 1N1FLS Homo sapiens cDNA clone IMAGE:128388 5'   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 6791                   | 19946                 | 33344             | 1.82                 | 1.0E-17                                       | AI185642.1               | EST_HUMAN                     | q655605.x1 Soares_fetal_lung_NHL19W Homo sapiens cDNA clone IMAGE:1743825 3'                                 |
| 6791                   | 19946                 | 33346             | 1.82                 | 1.0E-17                                       | AI185642.1               | EST_HUMAN                     | q655605.x1 Soares_fetal_lung_NHL19W Homo sapiens cDNA clone IMAGE:1743825 3'                                 |
| 7298                   | 20322                 | 33768             | 1.33                 | 1.0E-17                                       | Q16831                   | SWISSPROT                     | URIDINE PHOSPHORYLASE (UDRPASE)  |
| 7792                   | 21871                 | 35410             | 1.26                 | 1.0E-17                                       | BE062744.1               | EST_HUMAN                     | QV0-BT0263-101289-072-007 BT0263 Homo sapiens cDNA   |
| 10210                  | 23246                 | 36836             | 1.04                 | 1.0E-17                                       | AW989538.1               | EST_HUMAN                     | QV3-BN0046-220300-128-c10 BN0046 Homo sapiens cDNA   |
| 11703                  | 24700                 | 36803             | 1.52                 | 1.0E-17                                       | Q28824                   | SWISSPROT                     | MYOSIN LIGHT CHAIN KINASE, SMOOTH MUSCLE (MLCK) [CONTAINS: TELOKIN]  |
| 9698                   | 22747                 |                   | 3.05                 | 6.0E-18                                       | AI472187.1               | EST_HUMAN                     | (988403.x1 Soares_NSF_F8_9W_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:2148389 3'                              |
| 3888                   | 17045                 | 30044             | 2.14                 | 6.0E-18                                       | 4769977                  | NT                            | Homo sapiens protein tyrosine phosphatase, non-receptor type substrate 1 (PTPNS1) mRNA                       |
| 359                    | 13570                 | 26589             | 16.47                | 7.0E-18                                       | AW316976.1               | EST_HUMAN                     | xx10404.x1 NCL_CGAP_Part1 Homo sapiens cDNA clone IMAGE:2837071 3' similar to gblL20868 60S                  |
| 359                    | 13570                 | 26800             | 16.47                | 7.0E-18                                       | AW316976.1               | EST_HUMAN                     | xx10404.x1 NCL_CGAP_Part1 Homo sapiens cDNA clone IMAGE:2837071 3' similar to gblL20868 60S                  |
| 7601                   | 20671                 | 34145             | 1.09                 | 7.0E-18                                       | AW887642.1               | EST_HUMAN                     | RIBOSOMAL PROTEIN L4 (HUMAN);  |
| 12826                  | 13570                 | 26589             | 10.85                | 7.0E-18                                       | AW316976.1               | EST_HUMAN                     | RC3-OT0097-170300-011-003 OT0097 Homo sapiens cDNA   |
| 12826                  | 13570                 | 26800             | 10.85                | 7.0E-18                                       | AW316976.1               | EST_HUMAN                     | xx10404.x1 NCL_CGAP_Part1 Homo sapiens cDNA clone IMAGE:2837071 3' similar to gblL20868 60S                  |
| 3367                   | 16539                 | 29652             | 1.23                 | 6.0E-18                                       | X71791.2                 | NT                            | xx10404.x1 NCL_CGAP_Part1 Homo sapiens cDNA clone IMAGE:2837071 3' similar to gblL20868 60S                  |
| 4868                   | 18001                 |                   | 3.99                 | 6.0E-18                                       | PE2181                   | SWISSPROT                     | Rattus norvegicus partial Gdn/Pn-1 gene for gila-derived nexin/protease nexin I, enhancer region             |
| 8444                   | 21525                 |                   | 3.47                 | 6.0E-18                                       | 11428155                 | NT                            | PROTEIN GLUTAMINE GAMMA-GLUTAMYL TRANSFERASE (TISSUE TRANSGLUTAMINASE)                                       |
| 8543                   | 21624                 | 35161             | 0.78                 | 6.0E-18                                       | AL163210.2               | NT                            | (TGASE C) (TGC)  |
| 9291                   | 22367                 | 35916             | 0.48                 | 6.0E-18                                       | AI808258.1               | EST_HUMAN                     | Homo sapiens similar to high-mobility group (nonhistone chromosomal) protein 4 (H. sapiens) (LOC63446), mRNA |
| 9291                   | 22367                 | 35917             | 0.48                 | 6.0E-18                                       | AI908256.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C010  |
| 11389                  | 24480                 | 38124             | 3.63                 | 6.0E-18                                       | AL163248.2               | NT                            | RC-BT166-020469-014 BT166 Homo sapiens cDNA  |
| 11612                  | 24864                 | 38351             | 1.89                 | 6.0E-18                                       | X87944.1                 | NT                            | RC-BT166-020469-014 BT166 Homo sapiens cDNA  |
| 12634                  | 25364                 | 32068             | 3.91                 | 6.0E-18                                       | U87629.1                 | NT                            | Homo sapiens chromosome 21 segment HS21C046  |
| 1171                   | 14334                 | 27980             | 12.48                | 5.0E-18                                       | AI280214.1               | EST_HUMAN                     | H. sapiens DMA, DMB, HLA-Z1, JPP2, LMP2, TAP1, LMP7, TAP2, DOB, DOB2 and RING8, 9, 13 and 14 genes           |
| 4433                   | 17573                 | 30555             | 0.59                 | 5.0E-18                                       | 10946905                 | NT                            | Human aconitase hydratase (ACO2) gene, exon 4  |
| 5387                   | 18589                 | 31561             | 1.29                 | 5.0E-18                                       | AF087913.1               | NT                            | q985g11.x1 Soares_placenta_860weeks_2Nbl-IP860W Homo sapiens cDNA clone IMAGE:1863688 3'                     |
| 8917                   | 21899                 | 35535             | 3.47                 | 5.0E-18                                       | BE143312.1               | EST_HUMAN                     | similar to contains Alu repetitive element;  |
|                        |                       |                   |                      |   |                          | NT                            | Mus musculus gasdermin (Gsdm), mRNA  |
|                        |                       |                   |                      |   |                          | NT                            | Human endogenous retrovirus HERV-P-T47D  |
|                        |                       |                   |                      |   |                          | EST_HUMAN                     | MIR0-HT0161-221089-002-c06 HT0161 Homo sapiens cDNA  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 11223                  | 24282                 | 37832             | 3.43                 | 5.0E-18                                       | 10242378                 | NT                            | Homo sapiens lymphocyte activation-associated protein (LOC51088), mRNA  |
| 11223                  | 24282                 | 37833             | 3.43                 | 5.0E-18                                       | 10242378                 | NT                            | Homo sapiens lymphocyte activation-associated protein (LOC51088), mRNA  |
| 12676                  | 25450                 |                   | 6.28                 | 5.0E-18                                       | AW067182.1               | EST_HUMAN                     | MIR1-SN0036-060400-001-g11 SN0035 Homo sapiens cDNA   |
| 13063                  | 25636                 |                   | 28.96                | 5.0E-18                                       | AV050547.1               | EST_HUMAN                     | AV050547 GLC Homo sapiens cDNA clone GLCGA02.3'   |
| 127                    | 13355                 | 26388             | 0.91                 | 4.0E-18                                       | BE044076.1               | EST_HUMAN                     | h036104.x1 NCL_CGAP_U1 Homo sapiens cDNA clone IMAGE:3039511 3' similar to contains MER29.L8  |
| 127                    | 13355                 | 26387             | 0.91                 | 4.0E-18                                       | BE044076.1               | EST_HUMAN                     | MER29 repetitive element;   |
| 1754                   | 14903                 | 27898             | 52.62                | 4.0E-18                                       | AA021814.1               | EST_HUMAN                     | h024f11.s1 NCL_CGAP_Co10 Homo sapiens cDNA clone IMAGE:1144845 3' similar to gb:M28326  |
| 1838                   | 15081                 |                   | 1.05                 | 4.0E-18                                       | AF38592.1                | EST_HUMAN                     | KERATIN, TYPE I CYTOSKELETAL 18 (HUMAN);  |
| 2274                   | 16407                 | 28538             | 1.26                 | 4.0E-18                                       | Q06430                   | SWISSPROT                     | h033h08.x1 NCL_CGAP_Co16 Homo sapiens cDNA clone IMAGE:2382095 3'   |
| 2274                   | 16407                 | 28537             | 1.26                 | 4.0E-18                                       | Q06430                   | SWISSPROT                     | N-ACETYLGLUCOSAMINIDE BETA-1,6-N-ACETYLGLUCOSAMINYLTRANSFERASE (N-ACETYLGLUCOSAMINYLTRANSFERASE) (H-BRANCHING ENZYME) (IGNT)            |
| 3882                   | 17051                 | 30050             | 0.61                 | 4.0E-18                                       | AI017596.1               | EST_HUMAN                     | N-ACETYLGLUCOSAMINYLTRANSFERASE (H-BRANCHING ENZYME) (IGNT)   |
| 5479                   | 18678                 | 31691             | 2.47                 | 4.0E-18                                       | AI017596.1               | EST_HUMAN                     | ACETYLGLUCOSAMINYLTRANSFERASE (H-BRANCHING ENZYME) (IGNT)   |
| 5479                   | 18678                 | 31692             | 2.47                 | 4.0E-18                                       | AI017596.1               | EST_HUMAN                     | ACETYLGLUCOSAMINYLTRANSFERASE (H-BRANCHING ENZYME) (IGNT)   |
| 8028                   | 21112                 |                   | 0.62                 | 4.0E-18                                       | AA746811.1               | EST_HUMAN                     | h033h08.x1 Barstead colon HFLRB7 Homo sapiens cDNA clone IMAGE:2173139 3' similar to contains Alu repetitive element;                   |
| 11264                  | 24323                 | 37984             | 7.59                 | 4.0E-18                                       | AA371807.1               | EST_HUMAN                     | EST 783633 Pituitary gland, subtracted (prolactin/growth hormone) II Homo sapiens cDNA 5' end similar to EST containing O family repeat |
| 872                    | 14048                 | 27114             | 3.81                 | 3.0E-18                                       | AA014186.1               | EST_HUMAN                     | h023h11.s1 NCL_CGAP_Kid5 Homo sapiens cDNA clone IMAGE:1324581 3' similar to SW:RSS_HUMAN   |
| 953                    | 14126                 | 27187             | 2.26                 | 3.0E-18                                       | BE088634.1               | EST_HUMAN                     | P46782 40S RIBOSOMAL PROTEIN S6 ;   |
| 4060                   | 17216                 | 30226             | 1.06                 | 3.0E-18                                       | AL163247.2               | NT                            | CMO-BT0680-210300-288-g07 BT0680 Homo sapiens cDNA  |
| 8988                   | 20196                 | 33622             | 4.72                 | 3.0E-18                                       | BE001671.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C047   |
| 11167                  | 24238                 | 37869             | 1.99                 | 3.0E-18                                       | BF218650.1               | EST_HUMAN                     | PM0-BN0081-100300-001-508 BN0081 Homo sapiens cDNA  |
| 12832                  | 26654                 |                   | 4.55                 | 3.0E-18                                       | AW022015.1               | EST_HUMAN                     | 601864858F1 NIH_MGC_57 Homo sapiens cDNA clone IMAGE:4103662 5'   |
| 281                    | 13480                 | 28512             | 4.2                  | 2.0E-18                                       | AW836820.1               | EST_HUMAN                     | df81h12.y1 Morton Fetal Cerebra Homo sapiens cDNA clone IMAGE:2485126 5'  |
| 1176                   | 14339                 |                   | 74.12                | 2.0E-18                                       | BE250097.1               | EST_HUMAN                     | QV1-LT0038-160200-070-g07 LT0038 Homo sapiens cDNA  |
| 3183                   | 16368                 | 28374             | 0.94                 | 2.0E-18                                       | Q06575                   | SWISSPROT                     | 60114562F1 NIH_MGC_16 Homo sapiens cDNA clone IMAGE:3356044 5'  |
|                        |                       |                   |                      |   |                          |                               | DYNEIN GAMMA CHAIN, FLAGELLAR OUTER ARM   |



Page 248 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 5527                   | 18724                 |                   | 4.2                  | 2.0E-18                                       | AA88810.1                | EST_HUMAN                     | ak53a07.s1 Soares testis_NHT Homo sapiens cDNA clone IMAGE:1408652 3' similar to TR:O14577   |
| 5623                   | 18817                 | 31888             | 3.51                 | 2.0E-18                                       | D14547.1                 | NT                            | O14577 BAC CLONE RG114A08 FROM 7Q31, COMPLETE SEQUENCE. ;  |
| 5623                   | 18817                 | 31887             | 3.51                 | 2.0E-18                                       | D14547.1                 | NT                            | Human DNA, SINE repetitive element   |
| 5988                   | 19184                 |                   | 1.84                 | 2.0E-18                                       | BF347228.1               | EST_HUMAN                     | Human DNA, SINE repetitive element   |
| 6284                   | 19467                 | 32820             | 0.91                 | 2.0E-18                                       | X60459.1                 | NT                            | G02021164F1 NCI_CGAP_Bm87 Homo sapiens cDNA clone IMAGE:4156670 5'   |
| 6284                   | 19467                 | 32821             | 0.91                 | 2.0E-18                                       | X60459.1                 | NT                            | Human IFNAR gene for interferon alpha/beta receptor  |
| 6408                   | 19577                 | 32838             | 0.9                  | 2.0E-18                                       | BF352940.1               | EST_HUMAN                     | Human IFNAR gene for interferon alpha/beta receptor  |
| 6448                   | 19615                 | 32979             | 2.93                 | 2.0E-18                                       | AW685833.1               | EST_HUMAN                     | IL3-PT0819-220700-222-G12 HT0819 Homo sapiens cDNA   |
| 7594                   | 20685                 | 34141             | 0.50                 | 2.0E-18                                       | AA457619.1               | EST_HUMAN                     | h94g01.x1 Soares NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2878984 3' similar to contains   |
| 8341                   | 21422                 | 34947             | 0.5                  | 2.0E-18                                       | BE439524.1               | EST_HUMAN                     | MER19.12 MER19 repetitive element ;  |
| 10253                  | 23288                 | 36884             | 0.95                 | 2.0E-18                                       | AW151673.1               | EST_HUMAN                     | aa88d11.11 Strabagene fetal retina 937202 Homo sapiens cDNA clone IMAGE:838485 5' similar to   |
| 10253                  | 23288                 | 36885             | 0.95                 | 2.0E-18                                       | AW151673.1               | EST_HUMAN                     | TR:G61834 G61834 POLYPEPTIDE PR77 ;  |
| 11217                  | 24288                 | 37925             | 2.91                 | 2.0E-18                                       | AW470791.1               | EST_HUMAN                     | HTM1-180F1 HTM1 Homo sapiens cDNA  |
| 12031                  | 25014                 | 38716             | 4.46                 | 2.0E-18                                       | AW151289.1               | EST_HUMAN                     | x67e10.x1 NCI_CGAP_Gas4 Homo sapiens cDNA clone IMAGE:2823146 3' similar to contains MER10.12  |
| 12465                  | 14339                 |                   | 12.67                | 2.0E-18                                       | BE256087.1               | EST_HUMAN                     | MER10 repetitive element ;   |
| 4537                   | 17676                 |                   | 0.75                 | 1.0E-18                                       | T85408.1                 | EST_HUMAN                     | x67e10.x1 NCI_CGAP_Gas4 Homo sapiens cDNA clone IMAGE:2823146 3' similar to contains MER10.12  |
| 5471                   | 18671                 | 31651             | 2.84                 | 1.0E-18                                       | AV683405.1               | EST_HUMAN                     | ha33d08.x1 NCI_CGAP_K1d12 Homo sapiens cDNA clone IMAGE:2875488 3' similar to contains THR.b3  |
| 5688                   | 18882                 | 32174             | 3.08                 | 1.0E-18                                       | D00099.1                 | NT                            | THR repetitive element ;   |
| 5688                   | 18882                 | 32175             | 3.08                 | 1.0E-18                                       | D00099.1                 | NT                            | xg47e09.x1 NCI_CGAP_UH1 Homo sapiens cDNA clone IMAGE:2630728 3' similar to contains MER8.b2   |
| 6584                   | 19748                 | 33128             | 1.31                 | 1.0E-18                                       | AL103280.2               | NT                            | MER8 repetitive element ;  |
| 6637                   | 21717                 | 35254             | 1.05                 | 1.0E-18                                       | AH148288.1               | EST_HUMAN                     | 601114352F1 NIH_MGC_16 Homo sapiens cDNA clone IMAGE:3355044 5'  |
|                        |                       |                   |                      |   |                          |                               | yek3g05.r1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:1201636 5' similar to contains  |
|                        |                       |                   |                      |   |                          |                               | L1 repetitive element ;  |
|                        |                       |                   |                      |   |                          |                               | AV683405 GLC Homo sapiens cDNA clone GLCDKE11 3'   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens mRNA for Na,K-ATPase alpha-subunit, complete cds  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens mRNA for Na,K-ATPase alpha-subunit, complete cds  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens chromosome 21 segment HS21C080  |
|                        |                       |                   |                      |   |                          |                               | ca88d09.x1 Soares senescent_fibroblasts_NbHSF Homo sapiens cDNA clone IMAGE:1680593 3' similar to  |
|                        |                       |                   |                      |   |                          |                               | contains L1.H1 L1 repetitive element ;   |
| 10103                  | 23141                 | 36740             | 4.83                 | 1.0E-18                                       | U61328.1                 | NT                            | Human hereditary haemochromatosis region, histone 2A-like protein gene, hereditary haemochromatosis (H1A-H) gene, Rat gene, and sodium phosphate transporter (NPTS) gene, complete cds |
| 12410                  | 25284                 | 32084             | 4.65                 | 1.0E-18                                       | AF003529.1               | NT                            | Homo sapiens glycocalyx 3 (GPC3) gene, partial cds and flanking repeat regions   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 559                    | 13752                 | 26780             | 5.1                  | 9.0E-19                                       | AA281981.1               | EST_HUMAN                     | z11408.l1 NCL_CGAP_GC81 Homo sapiens cDNA clone IMAGE:712811 5' similar to contains MER19.12  |
| 560                    | 13752                 | 26780             | 3.91                 | 9.0E-19                                       | AA281981.1               | EST_HUMAN                     | MER19 repetitive element;   |
| 8032                   | 21115                 |                   | 3.69                 | 9.0E-19                                       | F09688.1                 | EST_HUMAN                     | z11408.l1 NCL_CGAP_GC81 Homo sapiens cDNA clone IMAGE:712811 5' similar to contains MER19.12  |
| 8688                   | 21965                 | 35501             | 2.57                 | 9.0E-19                                       | AL163203.2               | NT                            | HSC23F051 normalized infant brain cDNA Homo sapiens cDNA clone c-23f05  |
| 8888                   | 21965                 | 35502             | 2.57                 | 9.0E-19                                       | AL163203.2               | NT                            | Homo sapiens chromosome 21 segment HS21C003   |
| 11392                  | 24453                 | 38116             | 3.15                 | 9.0E-19                                       | AB032988.1               | NT                            | Homo sapiens chromosome 21 segment HS21C003   |
| 12171                  | 13752                 | 26780             | 19.34                | 9.0E-19                                       | AA281981.1               | EST_HUMAN                     | Homo sapiens mRNA for KIAA1143 protein, partial cds   |
| 1073                   | 14239                 |                   | 1.68                 | 8.0E-19                                       | AW674902.1               | EST_HUMAN                     | z11408.l1 NCL_CGAP_GC81 Homo sapiens cDNA clone IMAGE:712811 5' similar to contains MER19.12  |
| 8342                   | 21423                 | 34948             | 1.12                 | 8.0E-19                                       | BE158988.1               | EST_HUMAN                     | MER19 repetitive element;   |
| 2319                   | 15451                 | 28583             | 1.74                 | 7.0E-19                                       | 4758139                  | NT                            | EST387007 MAGE resequences, MAGN Homo sapiens cDNA  |
| 6585                   | 19747                 | 33129             | 2.11                 | 7.0E-19                                       | AF082090.1               | NT                            | MR0-HT0404-210200-001-g08 HT0404 Homo sapiens cDNA  |
| 7452                   | 20528                 | 34002             | 0.94                 | 7.0E-19                                       | P28444                   | SWISSPROT                     | Homo sapiens DEADH (Asp-Glu-Ala-Asp/His) box polypeptide 6 (RNA helicase, 54kd) (DDX6) mRNA   |
| 10216                  | 23252                 | 36841             | 0.54                 | 7.0E-19                                       | A1344951.1               | EST_HUMAN                     | Rattus norvegicus cp151 mRNA, partial cds   |
| 12316                  | 26183                 |                   | 1.72                 | 7.0E-19                                       | AA705684.1               | EST_HUMAN                     | BETA CRYSTALLIN A2  |
| 3879                   | 17038                 |                   | 1.16                 | 6.0E-19                                       | AW852830.1               | EST_HUMAN                     | t601608.x1 NCL_CGAP_Lu28 Homo sapiens cDNA clone IMAGE:2052302 3'   |
| 4685                   | 17722                 | 30706             | 1.66                 | 6.0E-19                                       | P34986                   | SWISSPROT                     | z180101.s1 Soares_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:435145 3'   |
| 4585                   | 17722                 | 30706             | 1.56                 | 6.0E-19                                       | P34986                   | SWISSPROT                     | PMO-CT0248-131089-001-g01 CT0248 Homo sapiens cDNA  |
| 4921                   | 18051                 |                   | 1.2                  | 6.0E-19                                       | AJ271795.1               | NT                            | OLFACTORY RECEPTOR 6 (M50)  |
| 5978                   | 19163                 | 32483             | 5.17                 | 5.0E-19                                       | Q00193                   | SWISSPROT                     | Homo sapiens Xq pseudautosomal region; segment 1/2  |
| 6346                   | 19616                 | 32873             | 0.59                 | 5.0E-19                                       | AW683302.1               | EST_HUMAN                     | ZONA PELLUCIDA SPERM-BINDING PROTEIN B PRECURSOR (ZONA PELLUCIDA GLYCOPROTEIN ZP-X) (RC55)  |
| 10639                  | 23673                 | 37283             | -1.18                | 6.0E-19                                       | AJ287698.1               | NT                            | h177808.y1 NCL_CGAP_GU1 Homo sapiens cDNA clone IMAGE:2668787 5'  |
| 11829                  | 24818                 | 38508             | 8.14                 | 5.0E-19                                       | AW183725.1               | EST_HUMAN                     | Homo sapiens partial IL-12B11 gene for IL-12 receptor beta1 chain, exon 14  |
| 13083                  | 25885                 |                   | 1.34                 | 5.0E-19                                       | U68060.1                 | NT                            | x87802.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2684171 3' similar to contains element MSR1 repetitive element;   |
| 588                    | 13760                 | 28784             | 0.86                 | 4.0E-19                                       | AB007970.1               | NT                            | Human germline T-cell receptor beta chain TCRBV13S1, TCRBV/6S8A2T, TCRBV/6S6A3N2T, TCRBV/13S6A2T, TCRBV/6S9P, TCRBV/6S3A2T, TCRBV/13S8P, TCRBV/6S9A1N1T, TCRBV/5S2, TCRBV/6S8A2T, TCRBV/6S7P, TCRBV/13S4, TCRBV/6S2A1N1T, TCRBV/6S4A2T, TCRBV/6S4A1, TCRBV/23S1A2T, TCRBV12 |
| 2747                   | 15864                 | 28976             | 1.15                 | 4.0E-19                                       | BF687382.1               | EST_HUMAN                     | Homo sapiens mRNA, chromosome 1 specific transcript KIAA0501  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 5512                   | 18710                 | 31725             | 1.2                  | 4.0E-19                                       | AF224889.1               | NT                            | Homo sapiens marmosinase, beta A, lysosomal (MANBA) gene, and ubiquitin-conjugating enzyme E2D 3 (UBE2D3) genes, complete cds |
| 3955                   | 17113                 | 30114             | 1.02                 | 3.0E-19                                       | Q28997                   | SWISSPROT                     | BETA-2 ADRENERGIC RECEPTOR  |
| 3955                   | 17113                 | 30115             | 1.02                 | 3.0E-19                                       | Q28997                   | SWISSPROT                     | BETA-2 ADRENERGIC RECEPTOR  |
| 4400                   | 17543                 | 30526             | 0.85                 | 3.0E-19                                       | Q43900                   | SWISSPROT                     | LIM-ONLY PROTEIN 5 (TRIPLE LIM DOMAIN PROTEIN 5)  |
| 4400                   | 17543                 | 30527             | 0.85                 | 3.0E-19                                       | Q43900                   | SWISSPROT                     | LIM-ONLY PROTEIN 6 (TRIPLE LIM DOMAIN PROTEIN 6)  |
| 4589                   | 17707                 | 30888             | 1.42                 | 3.0E-19                                       | AV708136.1               | EST_HUMAN                     | AV708136 ADC Homo sapiens cDNA clone ADCAMA11 5'  |
| 5394                   | 18596                 |                   | 0.89                 | 3.0E-19                                       | AF223467.1               | NT                            | Homo sapiens NPD008 protein (NPD008) mRNA, complete cds   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens similar to aldo-keto reductase family 1, member B11 (aldose reductase-like) (H. sapiens) (LOC33222), mRNA        |
| 7643                   | 20615                 |                   | 1.88                 | 3.0E-19                                       | 11432214                 | NT                            | Mus musculus mRNA for TPCR33 protein  |
| 8658                   | 21101                 | 34614             | 1.09                 | 3.0E-19                                       | X88685.1                 | NT                            | Homo sapiens phorbol 1 protein (PBI) mRNA, complete cds   |
| 12593                  | 25395                 |                   | 16.36                | 3.0E-19                                       | AF165520.1               | NT                            | Homo sapiens chromosome 21 segment HS21C001   |
| 2627                   | 15750                 | 28665             | 20.06                | 2.0E-19                                       | AL163201.2               | NT                            | Q81602.X1 NCI CGAP_K45 Homo sapiens cDNA clone IMAGE:1915886 3' similar to TR:Q69388 Q69388                                   |
| 4588                   | 17706                 |                   | 1.34                 | 2.0E-19                                       | A8111783.1               | EST_HUMAN                     | POU/ENV GENE;   |
| 6179                   | 19355                 | 32703             | 0.81                 | 2.0E-19                                       | AV731382.1               | EST_HUMAN                     | AV731382 HTF Homo sapiens cDNA clone HTFAZC06 5'  |
| 7493                   | 20568                 | 34040             | 0.83                 | 2.0E-19                                       | 7857286                  | NT                            | Mus musculus keratin-associated protein 9-1 (Krtap9-1), mRNA  |
| 8526                   | 21606                 | 36146             | 10.24                | 2.0E-19                                       | AA012854.1               | EST_HUMAN                     | zs84c09.r1 Soares retina N2b4HR Homo sapiens cDNA clone IMAGE:360880 5'   |
| 10113                  | 23151                 | 36753             | 0.84                 | 2.0E-19                                       | Q85155                   | SWISSPROT                     | OLFACTORY RECEPTOR-LIKE PROTEIN OLF2  |
| 494                    | 13699                 |                   | 1.86                 | 1.0E-19                                       | BE408611.1               | EST_HUMAN                     | G0130412F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3698310 5'  |
|                        |                       |                   |                      |   |                          |                               | yo79g07.r1 Soares adult brain N2b4HB55Y Homo sapiens cDNA clone IMAGE:184188 5' similar to contains                           |
| 2233                   | 15397                 | 28486             | 1.84                 | 1.0E-19                                       | H30795.1                 | EST_HUMAN                     | MER10 repetitive element;   |
| 2782                   | 15936                 |                   | 2.4                  | 1.0E-19                                       | D38044.1                 | NT                            | Human gene for AII-receptor, exon 7-9   |
| 2909                   | 16037                 |                   | 6.72                 | 1.0E-19                                       | 47588977                 | NT                            | Homo sapiens protein tyrosine phosphatase, non-receptor type substrate 1 (PTPNS1) mRNA  |
|                        |                       |                   |                      |   |                          |                               | af48b012.s1 Soares testis NHT Homo sapiens cDNA clone IMAGE:1983631 3' similar to contains MER37.2                            |
| 3488                   | 16655                 | 28889             | 1.18                 | 1.0E-19                                       | AA894867.1               | EST_HUMAN                     | MER37 repetitive element;   |
|                        |                       |                   |                      |   |                          |                               | wm9108.X1 NCI CGAP_U12 Homo sapiens cDNA clone IMAGE:2443287 3' similar to TR:Q16630 Q16630                                   |
| 5452                   | 18852                 | 31631             | 0.73                 | 1.0E-19                                       | AJ890968.1               | EST_HUMAN                     | PMS3 MRNA;  |
| 6189                   | 19374                 | 32725             | 2.6                  | 1.0E-19                                       | U12186.1                 | NT                            | Oryctolagus cuniculus sodium/dicarboxylate cotransporter mRNA, partial cds  |
| 6337                   | 28213                 |                   | 0.63                 | 1.0E-19                                       | AA595527.1               | EST_HUMAN                     | nt22d03.s1 NCI CGAP_P1 Homo sapiens cDNA clone IMAGE:963093 similar to contains L1.H L1                                       |
| 7806                   | 20862                 | 34355             | 1.05                 | 1.0E-19                                       | U08813.1                 | NT                            | Oryctolagus cuniculus sodium/dicarboxylate cotransporter-related protein mRNA, complete cds                                   |
| 7806                   | 20862                 | 34356             | 1.05                 | 1.0E-19                                       | U08813.1                 | NT                            | Oryctolagus cuniculus sodium/dicarboxylate cotransporter-related protein mRNA, complete cds                                   |
| 7977                   | 25856                 |                   | 0.75                 | 1.0E-19                                       | AF200719.1               | NT                            | Homo sapiens pituitary tumor transforming gene protein (PTTG) gene, complete cds  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 8844                   | 21724                 | 35281             | 1.94                 | 1.0E-19                                       | M84657.1                 | NT                            | Rabbit phosphatase kinase beta subunit mRNA, complete cds   |
| 8839                   | 22018                 |                   | 2.72                 | 1.0E-19                                       | T89920.1                 | EST_HUMAN                     | ye72b02.r1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:123243 5' similar to contains<br>OFR repetitive element;               |
| 8850                   | 22989                 |                   | 0.68                 | 1.0E-19                                       | U00322.1                 | NT                            | Human dystrophin (DMD) gene, exons 7, 8 and 9, and partial cds  |
| 10300                  | 23425                 | 37032             | 25.12                | 1.0E-19                                       | AW812289.1               | EST_HUMAN                     | RC0-STD174-181 Q88-031-005 ST0174 Homo sapiens cDNA   |
| 10400                  | 23435                 | 37042             | 1.59                 | 1.0E-19                                       | N44631.1                 | EST_HUMAN                     | Y31e03.r1 Soares melanocyte 2N6HM Homo sapiens cDNA clone IMAGE:272872 5'   |
| 11184                  | 24253                 | 37888             | 1.87                 | 1.0E-19                                       | BE618026.1               | EST_HUMAN                     | 601278882F1 NIH_MGC_39 Homo sapiens cDNA clone IMAGE:3811483 5'   |
| 6784                   | 19839                 | 33336             | 2.4                  | 8.0E-20                                       | 7657286                  | NT                            | Mus musculus keratin-associated protein 9-1 (Krtap9-1), mRNA  |
| 6784                   | 19839                 | 33337             | 2.4                  | 8.0E-20                                       | 7657286                  | NT                            | Mus musculus keratin-associated protein 9-1 (Krtap9-1), mRNA  |
| 7087                   | 20752                 | 34234             | 1.46                 | 8.0E-20                                       | A1221371.1               | EST_HUMAN                     | cg89f08.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:1842089 3'   |
| 7087                   | 20752                 | 34235             | 1.46                 | 8.0E-20                                       | A1221371.1               | EST_HUMAN                     | cg89f08.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:1842089 3'   |
| 3349                   | 16821                 | 29637             | 0.71                 | 7.0E-20                                       | BF328456.1               | EST_HUMAN                     | PMA-AND008-050900-003-e04 AN0098 Homo sapiens cDNA  |
| 7134                   | 18500                 | 31474             | 5.66                 | 7.0E-20                                       | AL138120.1               | EST_HUMAN                     | DKFZp47D082.r1 647 (synonym: hibr1) Homo sapiens cDNA clone DKFZp547D092 5'   |
| 8893                   | 21773                 | 35305             | 8.83                 | 7.0E-20                                       | AA557657.1               | EST_HUMAN                     | nt46c04.s1 NCI_CGAP_P4 Homo sapiens cDNA clone IMAGE:1043718 similar to contains MER29.b2<br>MER29 repetitive element;                          |
| 8693                   | 21773                 | 35306             | 8.83                 | 7.0E-20                                       | AA557657.1               | EST_HUMAN                     | nt46c04.s1 NCI_CGAP_P4 Homo sapiens cDNA clone IMAGE:1043718 similar to contains MER29.b2<br>MER29 repetitive element;                          |
| 12014                  | 24958                 |                   | 2.89                 | 7.0E-20                                       | 6912633                  | NT                            | Homo sapiens ribosomal protein L13a (RPL13A), mRNA  |
| 3845                   | 16808                 | 28822             | 3.94                 | 6.0E-20                                       | P38188                   | SWISSPROT                     | ALU SUBFAMILY J SEQUENCE CONTAMINATION WARNING ENTRY  |
| 4387                   | 17830                 | 30511             | 4.58                 | 6.0E-20                                       | BE622434.1               | EST_HUMAN                     | 601441231F1 NIH_MGC_72 Homo sapiens cDNA clone IMAGE:3916231 5'   |
| 4718                   | 17853                 |                   | 1.8                  | 5.0E-20                                       | AV725123.1               | EST_HUMAN                     | AV725123 HTC Homo sapiens cDNA clone HTC8TA01 5'  |
| 7284                   | 20347                 | 33789             | 1.42                 | 5.0E-20                                       | AF076301.1               | EST_HUMAN                     | AF076301 Human fetal liver cDNA library Homo sapiens cDNA clone HA0250  |
| 8131                   | 21213                 | 34733             | 6.96                 | 5.0E-20                                       | W90525.1                 | EST_HUMAN                     | zh78d08.s1 Soares_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:418191 3' similar to<br>contains MER30.t1 MER30 repetitive element; |
| 8131                   | 21213                 | 34734             | 6.96                 | 5.0E-20                                       | W90525.1                 | EST_HUMAN                     | zh78d08.s1 Soares_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:418191 3' similar to<br>contains MER30.t1 MER30 repetitive element; |
| 8295                   | 21377                 | 34898             | 0.79                 | 5.0E-20                                       | BE165880.1               | EST_HUMAN                     | MIR3-HT0487-160200-113-g01 HT0487 Homo sapiens cDNA   |
| 8035                   | 22114                 | 35657             | 1.28                 | 5.0E-20                                       | AB028174.1               | NT                            | Mus musculus MMAN-g mRNA, complete cds  |
| 8035                   | 22114                 | 35658             | 1.28                 | 5.0E-20                                       | AB028174.1               | NT                            | Mus musculus MMAN-g mRNA, complete cds  |
| 8044                   | 21087                 |                   | 1.13                 | 5.0E-20                                       | CG0009                   | SWISSPROT                     | HYPOTHETICAL PROTEIN DJ845024.1   |
| 1049                   | 14802                 | 27889             | 0.94                 | 4.0E-20                                       | AL103247.2               | NT                            | Homo sapiens chromosome 21 segment HS21C047   |
| 5765                   | 18957                 |                   | 1.13                 | 4.0E-20                                       | Q89890                   | SWISSPROT                     | HISTONE H2B C (H2B/C)   |
| 8110                   | 21182                 |                   | 5.01                 | 4.0E-20                                       | AB474352.1               | EST_HUMAN                     | ts84g03.x1 NCI_CGAP_Ov35 Homo sapiens cDNA clone IMAGE:2283396 3'   |
| 10717                  | 23750                 | 37357             | 1.13                 | 4.0E-20                                       | AW687488.1               | EST_HUMAN                     | QV5-UT0043-090200-080-c04 DT0043 Homo sapiens cDNA  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO. | Exon<br>SEQ ID<br>NO. | ORF SEQ<br>ID NO. | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 2207                   | 15341                 | 28468             | 1.22                 | 3.0E-20                                       | U03888.1                 | NT                            | Human BXP21 gene   |
| 4325                   | 17468                 | 30455             | 1.28                 | 3.0E-20                                       | P23273                   | SWISSPROT                     | OLFACTORY RECEPTOR-LIKE PROTEIN 14   |
| 4747                   | 17882                 | 30864             | 1.08                 | 3.0E-20                                       | AA037618.1               | EST_HUMAN                     | z436b12.s1 Soares pregnant uterus NIH-IPU Homo sapiens cDNA clone IMAGE:484895 3' similar to contains L1.13 L1 repetitive element; |
| 9135                   | 22214                 |                   | 2.69                 | 3.0E-20                                       | D14547.1                 | NT                            | Human DNA, SINE repetitive element   |
| 10527                  | 23562                 | 37168             | 0.47                 | 3.0E-20                                       | BF168284.1               | EST_HUMAN                     | 601843661F1 NIH_MGC 54 Homo sapiens cDNA clone IMAGE:4084343 5'  |
| 10900                  | 23984                 |                   | 1.59                 | 3.0E-20                                       | P11369                   | SWISSPROT                     | RETROVIRUS-RELATED POLYPROTEIN [CONTAINS: REVERSE TRANSCRIPTASE; ENDONUCLEASE]   |
| 12331                  | 26239                 | 32109             | 0.09                 | 3.0E-20                                       | BE888422.1               | EST_HUMAN                     | 601614180F1 NIH_MGC 71 Homo sapiens cDNA clone IMAGE:3915522 5'  |
| 853                    | 14030                 |                   | 5.65                 | 2.0E-20                                       | AW303888.1               | EST_HUMAN                     | x224610.x1 NCI_CGAP_U44 Homo sapiens cDNA clone IMAGE:2761098 3' similar to SW:RS5_MOUSE   |
| 1135                   | 14300                 | 27355             | 2.49                 | 2.0E-20                                       | AA516335.1               | EST_HUMAN                     | P97461 40S RIBOSOMAL PROTEIN S5;   |
| 1135                   | 14300                 | 27356             | 2.49                 | 2.0E-20                                       | AA516335.1               | EST_HUMAN                     | ng69h09.s1 NCI_CGAP_Lip2 Homo sapiens cDNA clone IMAGE:240097 similar to TR:G1224068   |
| 2878                   | 14030                 |                   | 5.32                 | 2.0E-20                                       | AW303888.1               | EST_HUMAN                     | G1224068 ORF2 FUNCTION UNKNOWN;  |
| 5061                   | 18189                 | 31163             | 5.15                 | 2.0E-20                                       | Q28983                   | SWISSPROT                     | ng69h09.s1 NCI_CGAP_Lip2 Homo sapiens cDNA clone IMAGE:240097 similar to TR:G1224068   |
| 5061                   | 18189                 | 31164             | 5.15                 | 2.0E-20                                       | Q28983                   | SWISSPROT                     | x224610.x1 NCI_CGAP_U44 Homo sapiens cDNA clone IMAGE:2761098 3' similar to SW:RS5_MOUSE   |
| 5256                   | 18376                 |                   | 0.9                  | 2.0E-20                                       | 5174538                  | NT                            | ZONADHESIN PRECURSOR   |
| 8309                   | 21391                 | 34915             | 0.97                 | 2.0E-20                                       | AA309467.1               | EST_HUMAN                     | ZONADHESIN PRECURSOR   |
| 9391                   | 22460                 | 36030             | 2.65                 | 2.0E-20                                       | D10083.1                 | NT                            | Homo sapiens male dehydrogenase 1, NAD (soluble) (MDH1) mRNA   |
| 9391                   | 22468                 | 36031             | 2.65                 | 2.0E-20                                       | D10083.1                 | NT                            | EST180328 Liver III Homo sapiens cDNA 5' and   |
| 12743                  | 25878                 | 31852             | 2.17                 | 2.0E-20                                       | H55371.1                 | EST_HUMAN                     | Homo sapiens RGH1 gene, retrovirus-like element  |
| 2070                   | 15935                 | 28327             | 6.61                 | 1.0E-20                                       | AA281961.1               | EST_HUMAN                     | Homo sapiens RGH1 gene, retrovirus-like element  |
| 4580                   | 17888                 | 30879             | 1.02                 | 1.0E-20                                       | BF115193.1               | EST_HUMAN                     | CHR220310 Chromosome 22 even Homo sapiens cDNA clone C22_391 5'  |
| 7034                   | 20170                 | 33592             | 0.74                 | 1.0E-20                                       | AF049597.1               | EST_HUMAN                     | 211406J1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:712611 5' similar to contains MER19.12  |
| 9364                   | 22439                 | 35998             | 2.08                 | 1.0E-20                                       | 11418491                 | NT                            | MER19 repetitive element;  |
| 11847                  | 24638                 | 38530             | 2.03                 | 1.0E-20                                       | AF223391.1               | NT                            | h64d06.x1 NCI_CGAP_Kid11 Homo sapiens cDNA clone IMAGE:3135155 3' similar to contains L1.12 L1 repetitive element;                 |
| 12461                  | 25523                 |                   | 2.91                 | 1.0E-20                                       | AA420453.1               | EST_HUMAN                     | AF049597 Human activated dendritic cell mRNA Homo sapiens cDNA clone GAO5  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens Autosomal Highly Conserved Protein (A-HCP), mRNA  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens calcium channel alpha1E subunit (CACNA1E) gene, exons 7-49, and partial cds, alternatively spliced                    |
|                        |                       |                   |                      |   |                          |                               | nc68g08.f1 NCI_CGAP_P1 Homo sapiens cDNA clone IMAGE:745684 similar to contains L1.13 L1 repetitive element;                       |

Page 251 of 550  
Table 4  
Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 2979                   | 16156                 |                   | 1.18                 | 9.0E-21                                       | AJ003514.1               | EST_HUMAN                     | AJ003514 Selected chromosome 21 cDNA library Homo sapiens cDNA clone MPIp12-8.121              |
| 12174                  | 25195                 |                   | 3.98                 | 9.0E-21                                       | AW888188.1               | EST_HUMAN                     | RC3-NIN0068-090500-021-603 NIN0068 Homo sapiens cDNA   |
| 9011                   | 22000                 |                   | 0.98                 | 8.0E-21                                       | AW674891.1               | EST_HUMAN                     | b330a02.y1 NIH_MGC_10 Homo sapiens cDNA clone IMAGE:2884714 5' similar to SW:NIAM_HUMAN        |
| 11630                  | 24919                 | 38510             | 3.91                 | 8.0E-21                                       | AA808411.1               | EST_HUMAN                     | C85109 NADH-UBIQUINONE OXIDOREDUCTASE ASHI SUBUNIT PRECURSOR ;                                 |
| 12345                  | 25250                 |                   | 3.8                  | 8.0E-21                                       | O21330                   | SWISSPROT                     | cd7106.51 NCI_CGAP_GC81 Homo sapiens cDNA clone IMAGE:1336835 3'                               |
| 2130                   | 15266                 | 28385             | 3.85                 | 7.0E-21                                       | P15800                   | SWISSPROT                     | ATP SYNTHASE A CHAIN (PROTEIN 8)   |
| 2130                   | 15266                 | 28386             | 3.85                 | 7.0E-21                                       | P15800                   | SWISSPROT                     | LAMININ BETA-2 CHAIN PRECURSOR (S-LAMININ) (LAMININ CHAIN B8)                                  |
| 3792                   | 16863                 | 28958             | 1.36                 | 7.0E-21                                       | AL163300.2               | NT                            | LAMININ BETA-2 CHAIN PRECURSOR (S-LAMININ) (LAMININ CHAIN B3)                                  |
| 4369                   | 17512                 |                   | 6.29                 | 7.0E-21                                       | AA046502.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C100  |
| 6994                   | 18728                 | 33104             | 0.94                 | 7.0E-21                                       | AL163218.2               | NT                            | z667a08.l1 Soares_pregnant_uterus_NIHPU Homo sapiens cDNA clone IMAGE:487858 5'                |
| 8592                   | 21663                 | 35203             | 1.46                 | 7.0E-21                                       | AJ277557.1               | NT                            | Homo sapiens chromosome 21 segment HS21C018  |
| 8876                   | 21654                 | 35490             | 4.94                 | 7.0E-21                                       | D14718.1                 | NT                            | Homo sapiens dNT-2 gene for mitochondrial 5'(3')-deoxyribonucleotidase (dNT-2 gene), exons 1-6 |
| 10319                  | 23354                 | 36863             | 1.07                 | 7.0E-21                                       | AW858922.1               | EST_HUMAN                     | Human chromosomal protein HMGI related gene  |
|                        |                       |                   |                      |   |                          |                               | RC0-CT0301-271169-031-F03 CT0301 Homo sapiens cDNA   |
| 10634                  | 24016                 | 37648             | 1.94                 | 7.0E-21                                       | AA723404.1               | EST_HUMAN                     | z973403.s1 Soares_Fetal_Heart_NIH19W Homo sapiens cDNA clone IMAGE:398981 3' similar to        |
| 4220                   | 17359                 | 30358             | 0.75                 | 6.0E-21                                       | BE408611.1               | EST_HUMAN                     | gb:MI4338 VITAMIN K-DEPENDENT PROTEIN S PRECURSOR (HUMAN); contains THR.L3 ORF                 |
| 9336                   | 22412                 |                   | 1.39                 | 6.0E-21                                       | BE162737.1               | EST_HUMAN                     | repetitive element ;   |
| 947                    | 14120                 | 27181             | 1.34                 | 5.0E-21                                       | 5802031                  | NT                            | 601304126F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3638310 5'                                |
| 2354                   | 15485                 | 28817             | 1.23                 | 5.0E-21                                       | AA928194.1               | EST_HUMAN                     | PM1-HT0454-080100-002-h09 HT0454 Homo sapiens cDNA   |
| 4483                   | 17623                 | 30804             | 3.21                 | 5.0E-21                                       | BE068838.1               | EST_HUMAN                     | Homo sapiens protein tyrosine phosphatase, non-receptor type 21 (PTPN21), mRNA                 |
| 4809                   | 14120                 | 27181             | 1.16                 | 5.0E-21                                       | 5802031                  | NT                            | om23g03.s1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:1541808 3' similar to TR:O02711   |
| 4923                   | 18053                 | 31039             | 8.33                 | 5.0E-21                                       | 4885474                  | NT                            | O02711 PRO-POL-DUTPASE POLYPROTEIN ;   |
| 6902                   | 20217                 |                   | 0.77                 | 5.0E-21                                       | AW440894.1               | EST_HUMAN                     | 601649871F1 NIH_MGC_74 Homo sapiens cDNA clone IMAGE:3933880 5'                                |
| 7157                   | 20291                 | 33734             | 1                    | 5.0E-21                                       | BE858505.1               | EST_HUMAN                     | Homo sapiens protein tyrosine phosphatase, non-receptor type 21 (PTPN21), mRNA                 |
| 10801                  | 23834                 | 37457             | 0.54                 | 5.0E-21                                       | Q91690                   | SWISSPROT                     | Homo sapiens melanoma antigen, family C, 1 (MAGEC1), mRNA                                      |
| 10801                  | 23834                 | 37458             | 0.54                 | 5.0E-21                                       | Q91690                   | SWISSPROT                     | hs05610.x1 NCI_CGAP_GML1 Homo sapiens cDNA clone IMAGE:2818154 3'                              |
| 12259                  | 25195                 |                   | 1.28                 | 5.0E-21                                       | AA983574.1               | EST_HUMAN                     | 783d111.x1 NCI_CGAP_Py28 Homo sapiens cDNA clone IMAGE:3303573 3' similar to contains OFR.t1   |
|                        |                       |                   |                      |   |                          |                               | OFR repetitive element ;   |
| 1772                   | 14921                 | 28015             | 1.88                 | 4.0E-21                                       | AA970713.1               | EST_HUMAN                     | ZINC FINGER PROTEIN GLI1 (GLI-1)   |
|                        |                       |                   |                      |   |                          |                               | ZINC FINGER PROTEIN GLI1 (GLI-1)   |
|                        |                       |                   |                      |   |                          |                               | z72d04.f1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:727878 5'                            |
|                        |                       |                   |                      |   |                          |                               | cc88a08.s1 NCI_CGAP_Kid5 Homo sapiens cDNA clone IMAGE:1573094 3' similar to TR:Q16630 Q16630  |
|                        |                       |                   |                      |   |                          |                               | PMS3 MRNA ; contains OFR.t1 ORF repetitive element ;   |

Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 7011                   | 20147                 | 33568             | 2.61                 | 4.0E-21                                       | AB019578.1               | NT                            | Rattus norvegicus mRNA for rTIM, complete cds  |
| 6983                   | 23022                 | 36914             | 0.82                 | 4.0E-21                                       | U91328.1                 | NT                            | Human hereditary haemochromatosis region, histone 2A-like protein gene, hereditary haemochromatosis (HLA-H) gene, RbRet gene, and sodium phosphate transporter (NPT3) gene, complete cds |
| 10010                  | 23048                 | 36942             | 0.51                 | 4.0E-21                                       | AL163202.2               | NT                            | Human sapiens chromosome 21 segment HS21C002   |
| 1894                   | 15028                 | 28135             | 1.1                  | 3.0E-21                                       | AA218891.1               | EST_HUMAN                     | zq15d06.s1 Stragene fetal retina 937202 Homo sapiens cDNA clone IMAGE:629771 3'  |
| 2248                   | 15479                 | 28611             | 1.51                 | 3.0E-21                                       | AL163201.2               | NT                            | Homo sapiens chromosome 21 segment HS21C001  |
| 3149                   | 16324                 | 29335             | 6.41                 | 3.0E-21                                       | AJ007973.1               | NT                            | Homo sapiens LGMD2B gene   |
| 5916                   | 18910                 | 31878             | 0.92                 | 3.0E-21                                       | AJ277557.1               | NT                            | Homo sapiens dNT-2 gene for mitochondrial 5'(3')-deoxyribonucleotidase (dNT-2 gene), exons 1-5   |
| 5916                   | 18910                 | 31879             | 0.82                 | 3.0E-21                                       | AJ277557.1               | NT                            | Homo sapiens dNT-2 gene for mitochondrial 5'(3')-deoxyribonucleotidase (dNT-2 gene), exons 1-5   |
| 5956                   | 19046                 |                   | 0.9                  | 3.0E-21                                       | AV681044.1               | EST_HUMAN                     | AV681044 GLC Homo sapiens cDNA clone CLG0A10 3'  |
| 6308                   | 19480                 |                   | 2.74                 | 3.0E-21                                       | BF184738.1               | EST_HUMAN                     | 601844465F1 NIH_MGC 54 Homo sapiens cDNA clone IMAGE:4084945 5'  |
| 7215                   | 20080                 | 33493             | 7.52                 | 3.0E-21                                       | BF361093.1               | EST_HUMAN                     | RC1-OT0083-100800-019-g08 OT0083 Homo sapiens cDNA   |
| 9894                   | 22834                 | 36518             | 0.92                 | 3.0E-21                                       | AW697760.1               | EST_HUMAN                     | CM1-NN0083-280400-203-h08 NN0083 Homo sapiens cDNA   |
| 12879                  | 26089                 | 31895             | 3.58                 | 3.0E-21                                       | AL163213.2               | NT                            | Homo sapiens chromosome 21 segment HS21C013  |
| 160                    | 13375                 |                   | 24.5                 | 2.0E-21                                       | BE163247.1               | EST_HUMAN                     | QV3-HT0458-170200-090-g12 HT0458 Homo sapiens cDNA   |
| 989                    | 14131                 | 27189             | 0.51                 | 2.0E-21                                       | AB007857.2               | NT                            | Homo sapiens mRNA for KIAA0397 protein, partial cds  |
| 989                    | 14131                 | 27190             | 0.51                 | 2.0E-21                                       | AB007857.2               | NT                            | Homo sapiens mRNA for KIAA0397 protein, partial cds  |
| 1241                   | 14400                 |                   | 3.03                 | 2.0E-21                                       | BE064410.1               | EST_HUMAN                     | RC4-BT0311-141198-011-h06 BT0311 Homo sapiens cDNA   |
| 2703                   | 15921                 | 28937             | 2.59                 | 2.0E-21                                       | Q28983                   | SWISSPROT                     | ZONADHESIN PRECURSOR   |
| 2703                   | 15921                 | 28938             | 2.59                 | 2.0E-21                                       | Q28983                   | SWISSPROT                     | ZONADHESIN PRECURSOR   |
| 5601                   | 18788                 | 31846             | 1.66                 | 2.0E-21                                       | A1624992.1               | EST_HUMAN                     | ts30r03.x1 NCI_CGAP_Pan1 Homo sapiens cDNA clone IMAGE:2230109 3' similar to TR:Q99854 Q99854  |
| 5694                   | 18888                 | 32178             | 0.8                  | 2.0E-21                                       | AA027211.1               | EST_HUMAN                     | HYPOETHICAL 51.1 KD PROTEIN;   |
| 5694                   | 18888                 | 32179             | 0.8                  | 2.0E-21                                       | AA027211.1               | EST_HUMAN                     | z997a12.r1 Scores fetal heart_Nbt-H19W Homo sapiens cDNA clone IMAGE:366910 5'   |
| 6157                   | 19333                 | 32678             | 0.74                 | 2.0E-21                                       | W44493.1                 | EST_HUMAN                     | z997a12.r1 Scores fetal heart_Nbt-H19W Homo sapiens cDNA clone IMAGE:366910 5'   |
| 8467                   | 21546                 | 35078             | 0.58                 | 2.0E-21                                       | AJ010770.1               | NT                            | z528h02.r1 Scores sarcolemmal fibroblasts_NbtHSF Homo sapiens cDNA clone IMAGE:323697 5'   |
| 8558                   | 21639                 | 35178             | 8.13                 | 2.0E-21                                       | BE141765.1               | EST_HUMAN                     | Homo sapiens hypoxan gene, exons 1-50  |
| 9023                   | 22102                 | 35842             | 3.27                 | 2.0E-21                                       | AU136779.1               | EST_HUMAN                     | QVQ-HT0103-091198-060-g11 HT0103 Homo sapiens cDNA   |
| 11313                  | 24377                 |                   | 2.04                 | 2.0E-21                                       | BE350127.1               | EST_HUMAN                     | AU136779 PLACE1 Homo sapiens cDNA clone PLACE1005052 5'  |
| 11599                  | 24652                 | 38335             | 2.88                 | 2.0E-21                                       | BE373829.1               | EST_HUMAN                     | h09g01.x1 NCI_CGAP_Kid13 Homo sapiens cDNA clone IMAGE:3146256 3' similar to contains MER29.b3   |
|                        |                       |                   |                      |   |                          |                               | MER29 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | 601680836F1 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:3951008 5'  |

Page 253 of 550  
Table 4  
Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 11599                  | 24652                 | 38336             | 2.88                 | 2.0E-21                                       | BE973829.1               | EST_HUMAN                     | 601680638F1 NIH_MGC_88 Homo sapiens cDNA clone IMAGE:3951008 5'                                |
| 12572                  | 26388                 |                   | 6.44                 | 2.0E-21                                       | AF170816.1               | NT                            | Homo sapiens putative 8-hydroxyguanine DNA glycosylase gene, complete cds                      |
| 1284                   | 14440                 | 27509             | 1.89                 | 1.0E-21                                       | AA557657.1               | EST_HUMAN                     | n49c04.s1 NCJ_CGAP_P14 Homo sapiens cDNA clone IMAGE:1043718 similar to contains MIER20.b2     |
| 1494                   | 14587                 |                   | 4.93                 | 1.0E-21                                       | AB01284.1                | EST_HUMAN                     | MER28 repetitive element;  |
| 6816                   | 19776                 |                   | 2.73                 | 1.0E-21                                       | AL079762.1               | EST_HUMAN                     | ar88d12.x1 Barstead ccdm HPLRB7 Homo sapiens cDNA clone IMAGE:2152343 3'                       |
|                        |                       |                   |                      |   |                          |                               | DKFZp434f0830_j1 434 (synonym: htes3) Homo sapiens cDNA clone DKFZp434f0830 5'                 |
| 7342                   | 20422                 | 33885             | 4.7                  | 1.0E-21                                       | A1228104.1               | EST_HUMAN                     | qq47a05.x1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:1838336 3' similar to gb:M64241 QM  |
| 10448                  | 23483                 | 37092             | 0.47                 | 1.0E-21                                       | AL163203.2               | NT                            | PROTEIN (HUMAN);   |
| 10448                  | 23483                 | 37093             | 0.47                 | 1.0E-21                                       | AL163203.2               | NT                            | Homo sapiens chromosome 21 segment HS21C003  |
| 10812                  | 23845                 |                   | 1.31                 | 1.0E-21                                       | 5730038                  | NT                            | Homo sapiens SET domain and nuclear transposase fusion gene (SETMAR) mRNA                      |
| 13014                  | 25687                 |                   | 1.67                 | 1.0E-21                                       | AF046133.1               | NT                            | Homo sapiens chromosome Xp22 410-8   |
| 4590                   | 17688                 | 30654             | 2.38                 | 9.0E-22                                       | A1702438.1               | EST_HUMAN                     | hs44a03.x1 NCJ_CGAP_Kid11 Homo sapiens cDNA clone IMAGE:2266204 3' similar to TR:Q15408 Q15408 |
| 8903                   | 21882                 | 35420             | 2.02                 | 9.0E-22                                       | AL163201.2               | NT                            | NEUTRAL PROTEASE LARGE SUBUNIT;  |
| 8903                   | 21882                 | 35421             | 2.02                 | 9.0E-22                                       | AL163201.2               | NT                            | Homo sapiens chromosome 21 segment HS21C001  |
| 11031                  | 24110                 | 37746             | 3.1                  | 9.0E-22                                       | AV781874.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C001  |
| 12007                  | 24992                 | 36696             | 1.39                 | 9.0E-22                                       | AU140358.1               | EST_HUMAN                     | AV781874 MDS Homo sapiens cDNA clone MDS0005 5'  |
| 971                    | 14144                 |                   | 7.93                 | 8.0E-22                                       | BE144748.1               | EST_HUMAN                     | AL140358 PLAGE2 Homo sapiens cDNA clone PLACE2000394 5'  |
| 8080                   | 21182                 |                   | 3.36                 | 8.0E-22                                       | AA046502.1               | EST_HUMAN                     | CM0-HT0178-281089-078-h05 HT0178 Homo sapiens cDNA   |
| 682                    | 13887                 | 26898             | 3.78                 | 7.0E-22                                       | AL163246.2               | NT                            | z67a06.1 Soares_pregnant_uterus_NHPIU Homo sapiens cDNA clone IMAGE:487853 5'                  |
| 4938                   | 17641                 | 30522             | 3.27                 | 7.0E-22                                       | Q61838                   | SWISSPROT                     | Homo sapiens chromosome 21 segment HS21C046  |
| 5150                   | 18272                 | 31241             | 0.91                 | 7.0E-22                                       | AB008881.1               | NT                            | ALPHA-2-MACROGLOBULIN PRECURSOR (ALPHA2M)  |
| 8888                   | 21897                 |                   | 1.24                 | 7.0E-22                                       | AF151054.1               | NT                            | Homo sapiens gene for activin receptor type IIB, complete cds                                  |
| 8032                   | 22111                 | 35653             | 2.77                 | 7.0E-22                                       | M78590.1                 | EST_HUMAN                     | Homo sapiens HS9C220 mRNA, complete cds  |
| 9802                   | 22842                 | 38419             | 2.05                 | 7.0E-22                                       | AF009660.1               | NT                            | EST00738 Fetal brain, Stratiogene (cat#886208) Homo sapiens cDNA clone HFBCF07                 |
| 8436                   | 21517                 |                   | 1.26                 | 6.0E-22                                       | AW029123.1               | EST_HUMAN                     | Homo sapiens T cell receptor beta locus, TORBV7S3A2 to TORBV12S2 region                        |
| 6846                   | 19806                 | 33192             | 3.27                 | 6.0E-22                                       | AL163203.2               | NT                            | w05g07.x1 NCJ_CGAP_Gas4 Homo sapiens cDNA clone IMAGE:2842812 3'                               |
| 10525                  | 23550                 | 37167             | 2.86                 | 6.0E-22                                       | U60822.1                 | NT                            | Homo sapiens chromosome 21 segment HS21C103  |
|                        |                       |                   |                      |   |                          |                               | Human dystrophin (DMD) gene, exons 7, 8 and 9, and partial cds                                 |
| 12833                  | 25555                 |                   | 1.63                 | 5.0E-22                                       | BF476511.1               | EST_HUMAN                     | hsa27a06.x1 NCJ_CGAP_P128 Homo sapiens cDNA clone IMAGE:3255898 3' similar to contains Alu     |
| 3726                   | 18987                 |                   | 0.77                 | 4.0E-22                                       | AJ271735.1               | NT                            | repetitive element   |
| 8608                   | 26224                 |                   | 2.81                 | 4.0E-22                                       | AL163202.2               | NT                            | Homo sapiens Xq pseudautosomal region; segment 1/2   |
| 10901                  | 24042                 | 37677             | 1.97                 | 4.0E-22                                       | BF218030.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C002  |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit<br>Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|-----------------------------|-------------------------------|---|
| 13021                  | 26672                 |                   | 3.85                 | 4.0E-22                                       | AL163209.2                  | NT                            | Homo sapiens chromosome 21 segment HS21C009   |
| 981                    | 14154                 |                   | 1.34                 | 3.0E-22                                       | AA69879.1                   | EST_HUMAN                     | tm14h10.x1 NCI_CGAP_Co14 Homo sapiens cDNA clone IMAGE:2198611 3' similar to gb:L19593 HIGH AFFINITY INTERLEUKIN-8 RECEPTOR B (HUMAN); contains L1.1 L1 repetitive element; |
| 2838                   | 15759                 | 28873             | 1.33                 | 3.0E-22                                       | AB59038.1                   | EST_HUMAN                     | w66b04.x1 NCI_CGAP_Bn25 Homo sapiens cDNA clone IMAGE:2428839 3' similar to SW_RL21_HUMAN   |
| 3783                   | 18324                 |                   | 1.66                 | 3.0E-22                                       | D14718.1                    | NT                            | P46778 60S RIBOSOMAL PROTEIN L21.;  |
| 4822                   | 18052                 | 31038             | 3.18                 | 3.0E-22                                       | AB60125.1                   | EST_HUMAN                     | Human chromosomal protein HMGI related gene   |
| 8011                   | 21061                 | 34573             | 0.8                  | 3.0E-22                                       | P11989                      | SWISSPROT                     | q228c07.x1 Scores_pregnant_uterus_NihPU Homo sapiens cDNA clone IMAGE:1697580 3' similar to contains MER12.12 MER12 repetitive element;                                     |
| 8425                   | 21508                 |                   | 1.11                 | 3.0E-22                                       | BE156613.1                  | EST_HUMAN                     | RETROVIRUS-RELATED POLYPROTEIN [CONTAINS: REVERSE TRANSCRIPTASE];   |
| 8430                   | 21611                 | 35042             | 1.88                 | 3.0E-22                                       | BE089841.1                  | EST_HUMAN                     | ENDONUCLEASE  |
| 8555                   | 21638                 | 35172             | 1.14                 | 3.0E-22                                       | X60680.1                    | NT                            | QV0-HT0368-080200-099-112 HT0368 Homo sapiens cDNA  |
| 8555                   | 21638                 | 35173             | 1.14                 | 3.0E-22                                       | X60680.1                    | NT                            | RC5-BT0707-150300-021-H10 BT0707 Homo sapiens cDNA  |
| 2009                   | 15148                 |                   | 4.04                 | 2.0E-22                                       | N24942.1                    | EST_HUMAN                     | RC5-BT0707-150300-021-H10 BT0707 Homo sapiens cDNA  |
| 2590                   | 15715                 | 28833             | 1.72                 | 2.0E-22                                       | P24918                      | SWISSPROT                     | R radius RY205 mRNA for a potential ligand-binding protein  |
| 3507                   | 18674                 | 29884             | 3.98                 | 2.0E-22                                       |                             | SWISSPROT                     | R radius RY205 mRNA for a potential ligand-binding protein  |
| 4341                   | 17484                 | 30488             | 1.41                 | 2.0E-22                                       | AW817794.1                  | EST_HUMAN                     | yk73d05.s1 Scores melanocyte 2Nblm Homo sapiens cDNA clone IMAGE:267369 3'  |
| 5973                   | 26814                 | 32478             | 1.47                 | 2.0E-22                                       | W39493.1                    | EST_HUMAN                     | IMMEDIATE EARLY GENE 13 PROTEIN PRECURSOR   |
| 6306                   | 19478                 | 32833             | 3.58                 | 2.0E-22                                       | BF092116.1                  | EST_HUMAN                     | Homo sapiens protein Kinase, AMP-activated, gamma 3 non-catalytic subunit (PRKAG3), mRNA  |
| 6904                   | 22644                 | 36529             | 1.78                 | 2.0E-22                                       | AL276522.1                  | EST_HUMAN                     | PM1-ST0262-261189-001-d12 ST0262 Homo sapiens cDNA  |
| 10001                  | 23039                 | 36830             | 0.85                 | 2.0E-22                                       | AA715315.1                  | EST_HUMAN                     | z020601.L1 Scores_servecant_fibroblasts_NHHSF Homo sapiens cDNA clone IMAGE:322873 5' similar to  |
| 10001                  | 23039                 | 36831             | 0.85                 | 2.0E-22                                       | AA715315.1                  | EST_HUMAN                     | gb:X72308 MONOCYTE CHEMOTACTIC PROTEIN 3 PRECURSOR (HUMAN);   |
| 12058                  | 25037                 | 38745             | 1.52                 | 2.0E-22                                       | AW418980.1                  | EST_HUMAN                     | RC0-TN0078-150800-025-h12 TN0078 Homo sapiens cDNA  |
| 12139                  | 25035                 | 31954             | 2.33                 | 2.0E-22                                       | AL163280.2                  | NT                            | q76r06.x1 Scores_NihMPu_S1 Homo sapiens cDNA clone IMAGE:1878289 3' similar to contains   |
| 1827                   | 16070                 | 28175             | 2.05                 | 1.0E-22                                       | AW865517.1                  | EST_HUMAN                     | MER29.13 MER29 repetitive element;  |
| 2861                   | 16774                 | 28887             | 2.98                 | 1.0E-22                                       | U50871.1                    | NT                            | m04h11.s1 NCI_CGAP_P22 Homo sapiens cDNA clone IMAGE:1219269 3'   |
| 3497                   | 18684                 | 29876             | 1.53                 | 1.0E-22                                       | D14547.1                    | NT                            | m04h11.s1 NCI_CGAP_P22 Homo sapiens cDNA clone IMAGE:1219269 3'   |
| 7820                   | 20971                 | 34478             | 1.09                 | 1.0E-22                                       | BE084667.1                  | EST_HUMAN                     | h024f04.x1 NCI_CGAP_K0412 Homo sapiens cDNA clone IMAGE:2874855 3'  |
| 10776                  | 23809                 | 37432             | 1.05                 | 1.0E-22                                       | AB366435.1                  | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C080   |
|                        |                       |                   |                      |   |                             |                               | PMA-SN0020-010400-009-h02 SN0020 Homo sapiens cDNA  |
|                        |                       |                   |                      |   |                             |                               | Human familial Alzheimer's disease (STM2) gene, complete cds  |
|                        |                       |                   |                      |   |                             |                               | Human DNA, SINE repetitive element  |
|                        |                       |                   |                      |   |                             |                               | MRO-BT0659-220200-002-h07 BT0659 Homo sapiens cDNA  |
|                        |                       |                   |                      |   |                             |                               | q208b07.x1 NCI_CGAP_GLL1 Homo sapiens cDNA clone IMAGE:2020881 3' similar to contains MER29.b2  |
|                        |                       |                   |                      |   |                             |                               | MER29 repetitive element;   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 10776                  | 23809                 | 37433             | 1.05                 | 1.0E-22                                       | AI395435.1               | EST_HUMAN                     | q208007.x1 NCL_CGAP_GLI1 Homo sapiens cDNA clone IMAGE:2020981 3' similar to contains MER29 b2         |
| 13078                  | 26707                 |                   | 12.31                | 9.0E-23                                       | AW802801.1               | EST_HUMAN                     | MER29 repetitive element ;   |
| 3691                   | 16824                 | 29833             | 0.74                 | 8.0E-23                                       | AF168349.1               | NT                            | IL2-JM0078-070400-061-F11 UM0078 Homo sapiens cDNA   |
| 3386                   | 16555                 |                   | 2.21                 | 7.0E-23                                       | AV647246.1               | EST_HUMAN                     | Gallus gallus Dach2 protein (Dach2) mRNA, complete cds   |
| 11253                  | 24359                 | 38000             | 3.74                 | 7.0E-23                                       | 5031932                  | NT                            | AV647246 GLC Homo sapiens cDNA clone GLCAW007 3'   |
| 3520                   | 16696                 |                   | 1.83                 | 6.0E-23                                       | AF168333.1               | NT                            | Homo sapiens Not58 (D. melanogaster)-like protein (NOT58L) mRNA  |
| 4383                   | 17828                 | 30507             | 1.15                 | 6.0E-23                                       | AL163249.2               | NT                            | Rattus norvegicus RIM1B (Rim1B) mRNA, complete cds   |
| 12283                  | 28211                 | 32097             | 4.93                 | 6.0E-23                                       | AF224689.1               | NT                            | Homo sapiens chromosome 21 segment HS21C049  |
| 12283                  | 28211                 | 32098             | 4.93                 | 6.0E-23                                       | AF224689.1               | NT                            | Homo sapiens mannosidase, beta A, lysosomal (MANBA) gene, and ubiquitin-conjugating enzyme E2D 3       |
| 12488                  | 25335                 | 32068             | 3.18                 | 6.0E-23                                       | AL209130.1               | EST_HUMAN                     | Homo sapiens mannosidase, beta A, lysosomal (MANBA) gene, and ubiquitin-conjugating enzyme E2D 3       |
|                        |                       |                   |                      |   |                          |                               | (UBE2D3) genes, complete cds   |
| 5580                   | 18757                 | 31788             | 4.01                 | 5.0E-23                                       | U82871.2                 | NT                            | q258c03.x1 Soares_besit_NHT Homo sapiens cDNA clone IMAGE:1839460 3' similar to                        |
| 6398                   | 25824                 | 32898             | 3.89                 | 5.0E-23                                       | AF178818.1               | NT                            | SW.MY10_MOUSE P23249 PROTEIN MOV-10. ;   |
| 7695                   | 26824                 | 32898             | 2.78                 | 5.0E-23                                       | AF178818.1               | NT                            | Homo sapiens chromosome Xq28 melanoma antigen family A2a (MAGEA2A), melanoma antigen family A12        |
| 6670                   | 18732                 | 33110             | 0.87                 | 3.0E-23                                       | AL163227.2               | NT                            | (MAGEA12), melanoma antigen family A2b (MAGEA2B), melanoma antigen family A3 (MAGEA3), caltractin      |
| 6670                   | 18732                 | 33111             | 0.87                 | 3.0E-23                                       | AL163227.2               | NT                            | (CALT), NAD(P)H dehydrogenase-like protein (NSDHL), and L1>  |
|                        |                       |                   |                      |   |                          |                               | Pongo pygmaeus difactory receptor (PPY116) gene, partial cds   |
| 8022                   | 21105                 | 34622             | 3.26                 | 3.0E-23                                       | AA130165.1               | EST_HUMAN                     | Pongo pygmaeus difactory receptor (PPY116) gene, partial cds   |
| 9450                   | 22586                 | 36130             | 3.72                 | 3.0E-23                                       | Z70684.1                 | NT                            | Homo sapiens chromosome 21 segment HS21C027  |
| 9460                   | 22586                 | 36131             | 3.72                 | 3.0E-23                                       | Z70684.1                 | NT                            | Homo sapiens chromosome 21 segment HS21C027  |
| 10523                  | 23559                 |                   | 1.42                 | 3.0E-23                                       | AW897827.1               | EST_HUMAN                     | z36p09.1 Soares_pregnant_uterus_Nib-IPU Homo sapiens cDNA clone IMAGE:5039683 5' similar to            |
|                        |                       |                   |                      |   |                          |                               | contains MER29.12 MER29 repetitive element ;   |
| 11372                  | 24433                 |                   | 1.35                 | 3.0E-23                                       | AF280107.1               | NT                            | Human endogenous retroviral element HC2  |
| 683                    | 13888                 | 26899             | 3.69                 | 2.0E-23                                       | AF280880.1               | NT                            | Human endogenous retroviral element HC2  |
| 1168                   | 16888                 |                   | 3.46                 | 2.0E-23                                       | M55270.1                 | NT                            | RC3-NIN0068-270400-011-h01 NN0068 Homo sapiens cDNA  |
| 2856                   | 16970                 | 29078             | 1                    | 2.0E-23                                       | P22105                   | SWISSPROT                     | Homo sapiens cytochrome P450 polypeptide 43 (CYP3A43) gene, partial cds; cytochrome P450 polypeptide 4 |
| 2856                   | 16970                 | 29080             | 1                    | 2.0E-23                                       | P22105                   | SWISSPROT                     | 4 (CYP3A4) and cytochrome P450 polypeptide 7 (CYP3A7) genes, complete cds; and cytochrome P450         |
|                        |                       |                   |                      |   |                          |                               | polypeptide 5 (CYP3A5) gene, partial cds   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens KIA0051 gene (partial), XT3 gene and LZTFL1 gene  |
|                        |                       |                   |                      |   |                          |                               | Human matrix Gla protein (MGP) gene, complete cds  |
|                        |                       |                   |                      |   |                          |                               | TENASCIN-X PRECURSOR (TN-X) (HEXABRACHION-LIKE)  |
|                        |                       |                   |                      |   |                          |                               | TENASCIN-X PRECURSOR (TN-X) (HEXABRACHION-LIKE)  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 3457                   | 16824                 |                   | 1.11                 | 2.0E-23                                       | AI201458.1               | EST_HUMAN                     | qs73f1.1x1 NCI_QGAP_P128 Homo sapiens cDNA clone IMAGE:1943757 3' similar to TR:Q13537 Q13537  |
| 3810                   | 16970                 |                   | 3.63                 | 2.0E-23                                       | BE165980.1               | EST_HUMAN                     | MER37 TRANSPOSABLE ELEMENT, COMPLETE CONSENSUS SEQUENCE.;  |
| 4086                   | 17240                 | 30246             | 4.43                 | 2.0E-23                                       | H59831.1                 | EST_HUMAN                     | MFR3-H10487-180200-113-g01 HT0487 Homo sapiens cDNA  |
| 4085                   | 17240                 | 30247             | 4.43                 | 2.0E-23                                       | H59831.1                 | EST_HUMAN                     | Y16402.11 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:205418 5'  |
|                        |                       |                   |                      |   |                          |                               | Y16402.11 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:205418 5'  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens cytochrome P450 polypeptide 43 (CYP3A43) gene, partial cds; cytochrome P450 polypeptide 4 (CYP3A4) and cytochrome P450 polypeptide 7 (CYP3A7) genes, complete cds; and cytochrome P450 polypeptide 5 (CYP3A5) gene, partial cds |
| 8057                   | 21140                 |                   | 5.28                 | 2.0E-23                                       | AF280107.1               | NT                            | Homo sapiens chromosome 21 segment HS21C103  |
| 9044                   | 22123                 | 35685             | 0.85                 | 2.0E-23                                       | AL163303.2               | NT                            | Homo sapiens alcohol dehydrogenase gamma subunit (ADH3) gene, exon 1   |
| 12266                  | 26189                 |                   | 6.7                  | 2.0E-23                                       | M32858.1                 | NT                            | Homo sapiens T cell receptor beta locus, TCRBV7S3A2 to TCRBV12S2 region  |
| 12844                  | 26581                 |                   | 3.68                 | 2.0E-23                                       | AF009680.1               | NT                            | Homo sapiens OVARC1 Homo sapiens cDNA clone OVARC1000946 5'  |
| 12883                  | 26103                 |                   | 2.3                  | 2.0E-23                                       | AU133931.1               | EST_HUMAN                     | AU133931 OVARC1 Homo sapiens cDNA clone OVARC1000946 5'  |
| 4650                   | 17786                 | 30768             | 1.57                 | 1.0E-23                                       | AL163252.2               | NT                            | Homo sapiens chromosome 21 segment HS21C052  |
| 4888                   | 18018                 |                   | 5.42                 | 1.0E-23                                       | AL163210.2               | NT                            | Homo sapiens chromosome 21 segment HS21C010  |
| 6861                   | 20013                 |                   | 3.27                 | 1.0E-23                                       | BE378471.1               | EST_HUMAN                     | 801238455F1 NIH_MGC_44 Homo sapiens cDNA clone IMAGE:3608833 5'  |
| 8551                   | 21632                 | 35189             | 4.61                 | 1.0E-23                                       | AA448097.1               | EST_HUMAN                     | zr62c08.11 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:782698 5' similar to contains PTR5.12   |
| 10909                  | 23992                 | 37825             | 2.19                 | 1.0E-23                                       | BE409843.1               | EST_HUMAN                     | PTR5 repetitive element;   |
| 10909                  | 23992                 | 37826             | 2.19                 | 1.0E-23                                       | BE409843.1               | EST_HUMAN                     | 601301782F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3636254 5'  |
| 13082                  | 26074                 | 31654             | 1.35                 | 1.0E-23                                       | AW801816.1               | EST_HUMAN                     | 601301782F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3636254 5'  |
|                        |                       |                   |                      |   |                          |                               | QV0-NN1020-170400-185-at11 NN1020 Homo sapiens cDNA  |
| 566                    | 13758                 |                   | 1.67                 | 9.0E-24                                       | AA663213.1               | EST_HUMAN                     | ab75a08.s1 Stratagene fetal retina 837202 Homo sapiens cDNA clone IMAGE:852758 3' similar to   |
| 4771                   | 17906                 | 30888             | 1.12                 | 8.0E-24                                       | P23268                   | SWISSPROT                     | TR:E19822 E19822 CA PROTEIN.;  |
| 4771                   | 17906                 | 30889             | 1.12                 | 8.0E-24                                       | P23269                   | SWISSPROT                     | OLFACTORY RECEPTOR-LIKE PROTEIN 13   |
| 6578                   | 19740                 | 33121             | 0.95                 | 8.0E-24                                       | 11422027                 | NT                            | OLFACTORY RECEPTOR-LIKE PROTEIN 13   |
| 3976                   | 17133                 |                   | 0.94                 | 7.0E-24                                       | AW637654.1               | EST_HUMAN                     | Homo sapiens capping protein (actin filament) muscle Z-line, alpha 2 (CAPZA2), mRNA  |
| 5281                   | 18400                 |                   | 16.78                | 7.0E-24                                       | AL039498.1               | EST_HUMAN                     | QV0-DT0047-170200-122-ab08 DT0047 Homo sapiens cDNA  |
| 10876                  | 23991                 |                   | 1.61                 | 7.0E-24                                       | AW303317.1               | EST_HUMAN                     | DKFZp434A2311_1 434 (synonym: hsc3) Homo sapiens cDNA clone DKFZp434A2311 6'   |
| 724                    | 13906                 |                   | 2.21                 | 6.0E-24                                       | AB001421.1               | NT                            | 3x1703.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2813405 3' similar to contains AU  |
| 861                    | 14038                 | 27100             | 12.8                 | 6.0E-24                                       | AL163249.2               | NT                            | repetitive element; contains MER19.12 MER19 repetitive element;  |
| 4078                   | 17234                 | 30241             | 9.39                 | 5.0E-24                                       | AJ226043.1               | NT                            | Macaca fasciata mRNA for Testis-Specific Protein Y (TSPY), complete cds  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens chromosome 21 segment HS21C049  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens 959 kb contig between AML1 and CBR1 on chromosome 21q22, segment 3/3  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens calcium channel alpha1E subunit (CACNA1E) gene, exons 7-49, and partial cds, alternatively spliced  |
| 7635                   | 20985                 | 34493             | 1.27                 | 5.0E-24                                       | AF223391.1               | NT                            |  |

### Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 4371                   | 17614                 |                   | 0.9                  | 4.0E-24                                       | BF369468.1               | EST_HUMAN                     | RCO-GN0080-250900-022-109 GN0080 Homo sapiens cDNA<br>nm311065.e1 NCI CGAP Gas1 Homo sapiens cDNA clone IMAGE:1085528 3' similar to SW:POL_MLVRK   |
| 6052                   | 19234                 | 32559             | 2.77                 | 4.0E-24                                       | AA594178.1               | EST_HUMAN                     | P31796 POL POLYPROTEIN ;   |
| 8880                   | 21659                 | 35494             | 0.71                 | 4.0E-24                                       | AW813711.1               | EST_HUMAN                     | RC3-ST0197-130100-014-f08 ST0197 Homo sapiens cDNA   |
| 11454                  | 24614                 | 38182             | 2.06                 | 4.0E-24                                       | BE544822.1               | EST_HUMAN                     | 801078812F1 NIH_MGC_12 Homo sapiens cDNA clone IMAGE:3484488 5'  |
| 12669                  | 25448                 | 32054             | 4.02                 | 4.0E-24                                       | AB028016.1               | NT                            | Homo sapiens mRNA for KIAA1063 protein, partial cds  |
| 7229                   | 20134                 | 33551             | 0.73                 | 3.0E-24                                       | U68061.1                 | NT                            | Human germline T-cell receptor beta chain TCRBV17S1A1T, TCRBV2S1, TCRBV10S1P, TCRBV28S1P, TCRBV16S1P, TCRBV15S1, TCRBV11S1A1T, HVB relic, TCRBV28S1P, TCRBV34S1, TCRBV14S1, TCRBV3S1, TCRBV4S1A1T, TRY4, TRY6, TRY7, TRY8, TCRBD1, TCRBJ1S1, TCRBJ1S2> |
| 7229                   | 20134                 | 33552             | 0.73                 | 3.0E-24                                       | U68061.1                 | NT                            | Human germline T-cell receptor beta chain TCRBV17S1A1T, TCRBV2S1, TCRBV10S1P, TCRBV28S1P, TCRBV16S1P, TCRBV15S1, TCRBV11S1A1T, HVB relic, TCRBV28S1P, TCRBV34S1, TCRBV14S1, TCRBV3S1, TCRBV4S1A1T, TRY4, TRY6, TRY7, TRY8, TCRBD1, TCRBJ1S1, TCRBJ1S2> |
| 8618                   | 21698                 |                   | 2.94                 | 3.0E-24                                       | AW614871.1               | EST_HUMAN                     | h68c08Lx1 NCI CGAP_GUI Homo sapiens cDNA clone IMAGE:2867950 3' similar to contains MER28.b2   |
| 8673                   | 21763                 |                   | 1.24                 | 3.0E-24                                       | AW962078.1               | EST_HUMAN                     | MER28 repetitive element ;   |
| 8865                   | 22627                 | 36198             | 3.78                 | 3.0E-24                                       | AL163262.2               | NT                            | EST1374149 IMAGE resequences, MAGG Homo sapiens cDNA   |
| 12756                  | 25501                 | 32004             | 1.34                 | 3.0E-24                                       | BF127782.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C052  |
| 2422                   | 15551                 | 28878             | 2.56                 | 2.0E-24                                       | AA167533.1               | EST_HUMAN                     | 601810448F1 NIH_MGC_48 Homo sapiens cDNA clone IMAGE:4053396 5'  |
| 3899                   | 17058                 |                   | 0.82                 | 2.0E-24                                       | AW898189.1               | EST_HUMAN                     | zp11109.J1 Stragene fetal retina 937202 Homo sapiens cDNA clone IMAGE:609161 5'  |
| 7615                   | 28219                 |                   | 0.63                 | 2.0E-24                                       | AL163209.2               | NT                            | RC3-NN0068-080500-021-503 NN0068 Homo sapiens cDNA   |
| 7643                   | 20712                 | 34191             | 0.9                  | 2.0E-24                                       | AF068824.1               | NT                            | Homo sapiens chromosome 21 segment HS21C009  |
| 7648                   | 20717                 | 34194             | 0.58                 | 2.0E-24                                       | AJ003536.1               | EST_HUMAN                     | Mus musculus rhoA:rho-interacting citron kinase (Crik) mRNA, complete cds  |
| 8938                   | 22017                 | 35559             | 3.81                 | 2.0E-24                                       | AL119158.1               | EST_HUMAN                     | AJ003536 Selected chromosome 21 cDNA library Homo sapiens cDNA clone MPI12-6H13  |
| 8977                   | 22056                 |                   |                      | 2.0E-24                                       | H68214.1                 | EST_HUMAN                     | DKFZp761L1712.J1 761 (synonym: hary2) Homo sapiens cDNA clone DKFZp761L1712 5'   |
| 10058                  | 23056                 | 36698             | 1.06                 | 2.0E-24                                       | A1621759.1               | EST_HUMAN                     | Y82508.J1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:212729 5' similar to contains  |
| 10058                  | 23056                 | 36699             | 1.06                 | 2.0E-24                                       | A1621759.1               | EST_HUMAN                     | MER28 repetitive element ;   |
| 12590                  | 26153                 |                   | 21.43                | 2.0E-24                                       | M28377.1                 | NT                            | EST1374149 IMAGE resequences, MAGG Homo sapiens cDNA   |
| 1731                   | 14881                 | 27972             | 4.81                 | 1.0E-24                                       | 7706340                  | NT                            | EST1374149 IMAGE resequences, MAGG Homo sapiens cDNA   |
| 2738                   | 15855                 |                   | 1.65                 | 1.0E-24                                       | AW820194.1               | EST_HUMAN                     | h67a09.x1 NCI CGAP Kid11 Homo sapiens cDNA clone IMAGE:2138008 3'  |
| 3085                   | 16261                 | 29278             | 0.72                 | 1.0E-24                                       | D68423.1                 | NT                            | h67a09.x1 NCI CGAP Kid11 Homo sapiens cDNA clone IMAGE:2138008 3'  |
| 4385                   | 17528                 |                   | 1.93                 | 1.0E-24                                       | AF149313.1               | NT                            | Human O family dispersed repeat element  |
|                        |                       |                   |                      |   |                          |                               | Human sapiens CGI-127 protein (LOC51648), mRNA   |
|                        |                       |                   |                      |   |                          |                               | QV0-ST0294-100400-185-c10 ST0294 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | Mus musculus mRNA for HGT keratin, partial cds   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens PTEN (PTEN) gene, exon 2  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 6531                   | 18695                 | 33088             | 1.13                 | 1.0E-24                                       | 7106336                  | NT                            | Mus musculus keratin complex-1, gene C29 (Krt1-c29), mRNA   |
| 7720                   | 20784                 | 34272             | 4.85                 | 1.0E-24                                       | AL163303.2               | NT                            | Homo sapiens chromosome 21 segment HS21C103   |
| 7907                   | 20959                 | 34465             | 5.07                 | 1.0E-24                                       | BE144528.1               | EST_HUMAN                     | MRO-HT0168-271189-005-408 HTD168 Homo sapiens cDNA  |
| 8130                   | 21212                 | 34732             | 2.29                 | 1.0E-24                                       | AW901184.1               | EST_HUMAN                     | CMD-NN1010-190300-281-407 NN1010 Homo sapiens cDNA  |
| 11899                  | 24984                 | 38689             | 1.37                 | 9.0E-25                                       | 7706707                  | NT                            | Homo sapiens putative secreted protein (SIG11), mRNA<br>nes2e10.e1 NCI CGAP_Kid1 Homo sapiens cDNA clone IMAGE:911754 similar to contains MER1.b2 |
| 5111                   | 18239                 | 31208             | 2.7                  | 7.0E-25                                       | AA483944.1               | EST_HUMAN                     | MER1 repetitive element;  |
| 8413                   | 21494                 | 35025             | 3.7                  | 7.0E-25                                       | AA48846.1                | EST_HUMAN                     | ne08a09.s1 NCI CGAP_Co3 Homo sapiens cDNA clone IMAGE:880408 3' similar to contains THR.b2 THR<br>repetitive element;                             |
| 12003                  | 24988                 | 38693             | 3.64                 | 7.0E-25                                       | AA593540.1               | EST_HUMAN                     | nt25f06.s1 NCI CGAP_P1 Homo sapiens cDNA clone IMAGE:914843 similar to SW.R14A_YEAST  |
| 7131                   | 18557                 | 34458             | 5.04                 | 6.0E-25                                       | W87623.1                 | EST_HUMAN                     | P36105 PROBABLE 60S RIBOSOMAL PROTEIN L14EA;  |
| 7859                   | 20951                 | 34458             | 11.72                | 6.0E-25                                       | 7303390                  | NT                            | zh69h07.r1 Scores fetal liver spleen INFLS S1 Homo sapiens cDNA clone IMAGE:416889 5'   |
| 1683                   | 14835                 | 27620             | 1.91                 | 5.0E-25                                       | AW850271.1               | EST_HUMAN                     | Mus musculus otogelin (Otog), mRNA  |
| 11598                  | 24949                 | 38333             | 3.12                 | 5.0E-25                                       | AW978107.1               | EST_HUMAN                     | IL3-CT0219-161189-031-D04 CT0219 Homo sapiens cDNA  |
| 1478                   | 14631                 | 27716             | 2.66                 | 4.0E-25                                       | T88107.1                 | EST_HUMAN                     | EST1391217 MAGE resequences; MAGP Homo sapiens cDNA   |
| 3489                   | 16656                 |                   | 2.81                 | 4.0E-25                                       | AW887871.1               | EST_HUMAN                     | ye68h04.r1 Scores fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:121783 5'  |
| 4438                   | 17576                 |                   | 4.08                 | 4.0E-25                                       | BE170657.1               | EST_HUMAN                     | FM3-OT0083-280200-001-g07 OT0083 Homo sapiens cDNA  |
| 10144                  | 23182                 | 36779             | 0.83                 | 4.0E-25                                       | AA368373.1               | EST_HUMAN                     | QV3-HT0543-140400-149-e11 HT0543 Homo sapiens cDNA  |
| 2256                   | 16389                 | 28516             | 1.02                 | 3.0E-25                                       | BE068922.1               | EST_HUMAN                     | EST197917 Thymus 1 Homo sapiens cDNA 5' end similar to EST containing O family repeat   |
| 3398                   | 18368                 | 29581             | 3.12                 | 3.0E-25                                       | 8923321                  | NT                            | RC3-BT0377-131288-031-F02 BT0377 Homo sapiens cDNA  |
| 3398                   | 18368                 | 29582             | 3.12                 | 3.0E-25                                       | P28622                   | SWISSPROT                     | Homo sapiens hypothetical protein FLJ20344 (FLJ20344), mRNA   |
| 5015                   | 18144                 | 31119             | 0.7                  | 3.0E-25                                       | AL163210.2               | NT                            | KALLISTATIN PRECURSOR (KALLIKREIN INHIBITOR) (PROTEASE INHIBITOR 4)   |
| 8532                   | 21613                 | 35149             | 5.42                 | 3.0E-25                                       | AL163210.2               | NT                            | Homo sapiens hypothetical protein FLJ20344 (FLJ20344), mRNA   |
| 11287                  | 24353                 | 37893             | 2.7                  | 3.0E-25                                       | AA579013.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C010   |
| 1378                   | 14533                 | 27607             | 4.9                  | 2.0E-25                                       | 5032168                  | NT                            | repetitive element;   |
| 2382                   | 15513                 | 28641             | 7.33                 | 2.0E-25                                       | BE888016.1               | EST_HUMAN                     | Homo sapiens transudulin (beta)-like 1 (TBL1) mRNA  |
| 2893                   | 15731                 | 28848             | 3.71                 | 2.0E-25                                       | P17008                   | SWISSPROT                     | 60151630F NIH_MGC_71 Homo sapiens cDNA clone IMAGE:3913087 5'   |
| 4307                   | 17450                 | 30436             | 1.81                 | 2.0E-25                                       | P17008                   | SWISSPROT                     | 40S RIBOSOMAL PROTEIN S16   |
| 4307                   | 17450                 | 30437             | 1.81                 | 2.0E-25                                       | P17008                   | SWISSPROT                     | 40S RIBOSOMAL PROTEIN S16   |
| 8867                   | 23006                 | 36601             | 2.13                 | 2.0E-25                                       | AL449573.1               | EST_HUMAN                     | 40S RIBOSOMAL PROTEIN S16   |
| 375                    | 13863                 | 28617             | 0.81                 | 1.0E-25                                       | AL040229.1               | EST_HUMAN                     | AL449573 Homo sapiens Testis (Stavrides (SS) Homo sapiens cDNA  |
| 1277                   | 14434                 |                   | 2.07                 | 1.0E-25                                       | 9835487                  | NT                            | DKFZp434H0313_r1 434 (synonym: hhes3) Homo sapiens cDNA clone DKFZp434H0313 5'  |
|                        |                       |                   |                      |   |                          |                               | Human endogenous retrovirus, complete genome  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO. | Exon<br>SEQ ID<br>NO. | ORF SEQ<br>ID NO. | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 4688                   | 18112                 | 31089             | 2.71                 | 1.0E-25                                       | BE162737.1               | EST_HUMAN                     | PM1-H10454-080100-002-H09 HT0454 Homo sapiens cDNA  |
| 5288                   | 18415                 | 31383             | 1.16                 | 1.0E-25                                       | 8823788                  | NT                            | Homo sapiens HSPC059 protein (HSPC059), mRNA  |
| 5288                   | 18415                 | 31384             | 1.16                 | 1.0E-25                                       | 8823786                  | NT                            | Homo sapiens HSPC059 protein (HSPC059), mRNA  |
| 6897                   | 18855                 |                   | 0.95                 | 1.0E-25                                       | AA189080.1               | EST_HUMAN                     | z445008.s1 Stragene hNT neuron (#837233) Homo sapiens cDNA clone IMAGE:632627 3' similar to contains Alu repetitive element                                       |
| 6898                   | 25838                 | 33688             | 2.95                 | 1.0E-25                                       | AA882680.1               | EST_HUMAN                     | m54h11.s1 NCI CGAP_K048 Homo sapiens cDNA clone IMAGE:1087749 3'  |
| 8098                   | 21180                 | 34698             | 3.56                 | 1.0E-25                                       | AA709079.1               | EST_HUMAN                     | z88g04.s1 Soares_fetal_heart_NbH-H19W Homo sapiens cDNA clone IMAGE:384822 3' similar to contains PTR6.t3 PTR6 repetitive element                                 |
| 9746                   | 22810                 | 36388             | 1.32                 | 1.0E-25                                       | X60680.1                 | NT                            | Rattus RY2G5 mRNA for a potential ligand-binding protein  |
| 9746                   | 22810                 | 36389             | 1.32                 | 1.0E-25                                       | X60680.1                 | NT                            | Rattus RY2G5 mRNA for a potential ligand-binding protein  |
| 11212                  | 24281                 | 37620             | 3.11                 | 1.0E-25                                       | U69163.1                 | NT                            | Homo sapiens MAGE-B2 (MAGE-B2), MAGE-B3 (MAGE-B3), MAGE-B4 (MAGE-B4), and MAGE-B1 (MAGE-B1) genes, complete cds   |
| 12280                  | 25209                 | 38384             | 1.62                 | 1.0E-25                                       | D14547.1                 | NT                            | Human DNA, SINE repetitive element  |
| 12280                  | 25209                 | 38385             | 1.62                 | 1.0E-25                                       | D14547.1                 | NT                            | Human DNA, SINE repetitive element  |
| 2553                   | 15678                 | 28802             | 1.94                 | 9.0E-26                                       | AL163218.2               | NT                            | Human sapiens chromosome 21 segment HS21C018  |
| 11262                  | 24321                 |                   | 2.35                 | 9.0E-26                                       | AI905388.1               | EST_HUMAN                     | QV-BT087-301298-008 BT087 Homo sapiens cDNA   |
| 12140                  | 25901                 |                   | 6.33                 | 9.0E-26                                       | AL163285.2               | NT                            | Homo sapiens chromosome 21 segment HS21C086   |
| 6811                   | 18001                 |                   | 1.51                 | 8.0E-26                                       | D14547.1                 | NT                            | Human DNA, SINE repetitive element  |
| 1608                   | 14761                 | 27840             | 5.61                 | 7.0E-26                                       | AF003528.1               | NT                            | Homo sapiens X-linked anhidrotic ectodermal dysplasia protein gene (EDA), exon 2 and flanking repeat regions  |
| 4089                   | 17244                 | 30251             | 1.68                 | 7.0E-26                                       | X89211.1                 | NT                            | H.sapiens DNA for endogenous retroviral like element  |
| 4276                   | 17420                 | 30407             | 1.92                 | 7.0E-26                                       | AW340163.1               | EST_HUMAN                     | hd02a12.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2806366 3'   |
| 5755                   | 18947                 | 32249             | 0.84                 | 7.0E-26                                       | AL163202.2               | NT                            | Homo sapiens chromosome 21 segment HS21C002   |
| 11986                  | 24951                 |                   | 6.85                 | 7.0E-26                                       | AA115895.1               | EST_HUMAN                     | zn380408.r1 Stragene neuroepithelium NT2RAMI 837234 Homo sapiens cDNA clone IMAGE:648943 5' similar to gb:MI4938 VITAMIN K-DEPENDENT PROTEIN S PRECURSOR (HUMAN); |
| 12901                  | 25596                 |                   | 5.49                 | 7.0E-26                                       | AW954559.1               | EST_HUMAN                     | EST366629 MAGE resequences, MAGC Homo sapiens cDNA  |
| 2300                   | 16432                 | 28565             | 3.83                 | 6.0E-26                                       | AF029308.1               | NT                            | Homo sapiens chromosome 9 duplication of the T cell receptor beta locus and hypoxanthine gene families  |
| 3427                   | 16585                 | 29611             | 0.69                 | 6.0E-26                                       | AA206131.1               | EST_HUMAN                     | z452404.r1 Stragene neuroepithelium (#837231) Homo sapiens cDNA clone IMAGE:645271 5'   |
| 10783                  | 23786                 | 37400             | 0.62                 | 6.0E-26                                       | AL163202.2               | NT                            | Homo sapiens chromosome 21 segment HS21C002   |
| 10783                  | 23786                 | 37401             | 0.62                 | 6.0E-26                                       | AL163202.2               | NT                            | Homo sapiens chromosome 21 segment HS21C002   |
| 11979                  | 24984                 | 38666             | 2.15                 | 6.0E-26                                       | AL163210.2               | NT                            | Homo sapiens chromosome 21 segment HS21C010   |
| 1204                   | 14366                 | 27426             | 0.89                 | 6.0E-26                                       | AI706295.1               | EST_HUMAN                     | as38108.x1 Bartshead aorta HPLRB6 Homo sapiens cDNA clone IMAGE:2318519 3' similar to WP-F49C12.11 CE03371  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 1204                   | 14368                 | 27427             | 0.89                 | 5.0E-26                                       | AI708235.1               | EST_HUMAN                     | ss38h108.x1 Barstead ex1a HPLR88 Homo sapiens cDNA clone IMAGE:2318519 3' similar to WP-F48C12.11 CE03371;   |
| 9612                   | 22697                 |                   | 3.29                 | 4.0E-26                                       | 7657870                  | NT                            | Homo sapiens upstream binding transcription factor, RNA polymerase I (UBTF), mRNA  |
| 10897                  | 23381                 | 37813             | 2.84                 | 4.0E-26                                       | BE266187.1               | EST_HUMAN                     | 901191345F1 NIH_MGC_7 Homo sapiens cDNA clone IMAGE:3538210 5'   |
| 11604                  | 24667                 | 38342             | 1.38                 | 4.0E-26                                       | AL183246.2               | NT                            | Homo sapiens chromosome 21 segment HS21C046  |
| 1797                   | 14946                 | 28038             | 1.25                 | 3.0E-26                                       | D14547.1                 | NT                            | Human DNA, SINE repetitive element   |
| 2059                   | 15200                 | 28314             | 1.14                 | 3.0E-26                                       | AL048863.2               | EST_HUMAN                     | DKFZp4341068_r1_434 (synonym: htss3) Homo sapiens cDNA clone DKFZp4341068 5'   |
| 2088                   | 18228                 |                   | 3.34                 | 3.0E-26                                       | AA115895.1               | EST_HUMAN                     | zn30d08.r1 Stratiogene neuroepithelium NT2RAM1 937234 Homo sapiens cDNA clone IMAGE:548943 5'  |
| 3878                   | 17037                 | 30035             | 1.41                 | 3.0E-26                                       | AA182484.1               | EST_HUMAN                     | similar to gb:M14338 VITAMIN K-DEPENDENT PROTEIN S PRECURSOR (HUMAN);  |
| 3878                   | 17037                 | 30035             | 1.41                 | 3.0E-26                                       | AA182484.1               | EST_HUMAN                     | zo30f10.r1 Stratiogene cdon (#837204) Homo sapiens cDNA clone IMAGE:588427 5' similar to TR:G695374  |
| 3878                   | 17037                 | 30035             | 1.41                 | 3.0E-26                                       | AA182484.1               | EST_HUMAN                     | G695374 THYROID RECEPTOR INTERACTOR;   |
| 7051                   | 20104                 | 33621             | 6.08                 | 3.0E-26                                       | BF245488.1               | EST_HUMAN                     | zo30f10.r1 Stratiogene cdon (#837204) Homo sapiens cDNA clone IMAGE:588427 5' similar to TR:G695374  |
| 11867                  | 24855                 | 38550             | 1.97                 | 3.0E-26                                       | AW875551.1               | EST_HUMAN                     | G695374 THYROID RECEPTOR INTERACTOR;   |
| 11867                  | 24855                 | 38551             | 1.97                 | 3.0E-26                                       | AW875551.1               | EST_HUMAN                     | 601884683F1 NIH_MGC_67 Homo sapiens cDNA clone IMAGE:4083278 5'  |
| 11802                  | 24890                 | 38591             | 7.79                 | 3.0E-26                                       | AA5883173.1              | EST_HUMAN                     | QV2-PT0012-040400-124-e05 PT0012 Homo sapiens cDNA   |
| 699                    | 13882                 | 26916             | 6.84                 | 2.0E-26                                       | AL183282.2               | NT                            | QV2-PT0012-040400-124-e05 PT0012 Homo sapiens cDNA   |
| 1917                   | 15060                 |                   | 3.07                 | 2.0E-26                                       | AL038039.2               | EST_HUMAN                     | tn37d05.s1 NCL_CGAP_GC5 Homo sapiens cDNA clone IMAGE:1086057 3' similar to contains OFR.t1  |
| 3303                   | 16477                 | 29498             | 5.22                 | 2.0E-26                                       | X86894.1                 | NT                            | OFR repetitive element;  |
| 10691                  | 24070                 |                   | 1.93                 | 2.0E-26                                       | D87876.1                 | NT                            | Homo sapiens chromosome 21 segment HS21C082  |
| 11493                  | 24551                 | 38228             | 2.98                 | 2.0E-26                                       | AI801412.1               | EST_HUMAN                     | DKFZp4568L171_s1_588 (synonym: htss3) Homo sapiens cDNA clone DKFZp4568L171 3'   |
| 11704                  | 24701                 |                   | 2.06                 | 2.0E-26                                       | AF055086.1               | NT                            | Mutisculus mRNA for astrocytic phosphoprotein, PEA-15  |
| 12369                  | 26276                 |                   | 1.76                 | 2.0E-26                                       | AB037868.1               | NT                            | Homo sapiens DNA for amyloid precursor protein, complete cds   |
| 12604                  | 26088                 | 31658             | 2.33                 | 2.0E-26                                       |                          | NT                            | ts88a01.x1 NCL_CGAP_Gas4 Homo sapiens cDNA clone IMAGE:2185416 3' similar to contains Alu repetitive element; contains element MER20 MER20 repetitive element; |
| 139                    | 13365                 | 26398             | 8.96                 | 1.0E-26                                       | BE170371.1               | EST_HUMAN                     | Homo sapiens MHC class 1 region  |
| 2105                   | 16244                 | 28365             | 1.42                 | 1.0E-26                                       | AL038039.2               | EST_HUMAN                     | Homo sapiens mRNA for KIAA1438 protein, partial cds  |
| 2751                   | 15668                 |                   | 6.28                 | 1.0E-26                                       | AF281085.1               | NT                            | Homo sapiens chromosome 12 open reading frame 3 (G12ORF3), mRNA  |
| 6980                   | 20208                 |                   | 2.89                 | 1.0E-26                                       | BE165890.1               | EST_HUMAN                     | QV4-H70538-020300-123-e02 HT0538 Homo sapiens cDNA   |
| 11131                  | 24203                 |                   | 1.98                 | 1.0E-26                                       | AL038487.1               | EST_HUMAN                     | DKFZp43411910_r1_434 (synonym: htss3) Homo sapiens cDNA clone DKFZp43411910 5'   |
| 12855                  | 26178                 |                   | 2.77                 | 1.0E-26                                       | HE6083.1                 | EST_HUMAN                     | Homo sapiens glyceraldehyde 3-phosphate dehydrogenase (GADPH) mRNA, complete cds   |
| 13175                  | 25763                 |                   | 1.16                 | 1.0E-26                                       | AW408742.1               | EST_HUMAN                     | MRO-H70487-150200-113-g01 HT0487 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | DKFZp4568C2146_r1_588 (synonym: htss3) Homo sapiens cDNA clone DKFZp4568C2146 5'   |
|                        |                       |                   |                      |   |                          |                               | CHFR220032 Chromosome 22 exon Homo sapiens cDNA clone C22_45 5'  |
|                        |                       |                   |                      |   |                          |                               | UHF-BMD-adv-4-10-Q-U.r1 NIH_MGC_38 Homo sapiens cDNA clone IMAGE:3063210 5'  |

Page 261 of 550  
Table 4  
Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 7757                   | 20816                 |                   | 0.87                 | 9.0E-27                                       | BF371227.1               | EST_HUMAN                     | RC8-FND138-110800-022-A02-FND138 Homo sapiens cDNA  |
| 9603                   | 22769                 |                   | 5.02                 | 9.0E-27                                       | U93163.1                 | NT                            | Homo sapiens IMAGE-B2 (IMAGE-B2), IMAGE-B3 (IMAGE-B3), IMAGE-B4 (IMAGE-B4), and IMAGE-B1 (IMAGE-B1) genes, complete cds             |
| 12143                  | 25118                 |                   | 6.5                  | 9.0E-27                                       | BF445563.1               | EST_HUMAN                     | ncat3c07.x1 NC1_CGAP_P28 Homo sapiens cDNA clone IMAGE:3253044 3' similar to contains OFR.t1 OFR repetitive element ;               |
| 11                     | 13249                 | 26249             | 4.22                 | 8.0E-27                                       | A831482.1                | EST_HUMAN                     | W49-04.x1 NC1_CGAP_Lu19 Homo sapiens cDNA clone IMAGE:2408160 3' similar to contains THR.b2 T-R repetitive element ;                |
| 571                    | 13763                 |                   | 4.57                 | 8.0E-27                                       | AL163227.2               | NT                            | Homo sapiens chromosome 21 segment HS21C027   |
| 1448                   | 14601                 | 27678             | 23.84                | 8.0E-27                                       | AW162737.1               | EST_HUMAN                     | au87708.x1 Schneider fetal brain 00004 Homo sapiens cDNA clone IMAGE:2783285 3' similar to gb:K00558 TUBULIN ALPHA-1 CHAIN (HUMAN); |
| 1448                   | 14601                 | 27678             | 23.84                | 8.0E-27                                       | AW162737.1               | EST_HUMAN                     | au87708.x1 Schneider fetal brain 00004 Homo sapiens cDNA clone IMAGE:2783285 3' similar to gb:K00558 TUBULIN ALPHA-1 CHAIN (HUMAN); |
| 2236                   | 15368                 | 28409             | 1.82                 | 8.0E-27                                       | AW864776.1               | EST_HUMAN                     | PM2-SN0018-220300-002-e07 SN0018 Homo sapiens cDNA  |
| 3254                   | 16426                 | 29446             | 1.8                  | 8.0E-27                                       | P12236                   | SWISSPROT                     | ADP.ATP CARRIER PROTEIN, LIVER ISOFORM T2 (ADP/ATP TRANSLOCASE 9) (ADENINE NUCLEOTIDE TRANSLOCATOR 3) (ANT 3)                       |
| 3434                   | 16802                 | 29821             | 0.76                 | 8.0E-27                                       | AF181887.1               | NT                            | Homo sapiens WRN (WRN) gene, complete cds   |
| 5812                   | 19002                 | 32308             | 1.07                 | 8.0E-27                                       | AV732214.1               | EST_HUMAN                     | AV732214 HTF Homo sapiens cDNA clone HITEBCB08 5'   |
| 7117                   | 18543                 |                   | 2.85                 | 8.0E-27                                       | BE928560.1               | EST_HUMAN                     | MR4-BT0398-260800-204-d08 BT0398 Homo sapiens cDNA  |
| 7192                   | 20057                 | 33467             | 2.49                 | 8.0E-27                                       | N84970.1                 | EST_HUMAN                     | J1751F Human fetal heart, Lambda ZAP Express Homo sapiens cDNA clone J1751 5' similar to REPETITIVE ELEMENT L1                      |
| 9410                   | 22484                 | 36048             | 1.63                 | 8.0E-27                                       | AW857579.1               | EST_HUMAN                     | GM1-CT0315-091289-083-d07 CT0315 Homo sapiens cDNA  |
| 9410                   | 22484                 | 36049             | 1.63                 | 8.0E-27                                       | AW857579.1               | EST_HUMAN                     | GM1-CT0315-091289-083-d07 CT0315 Homo sapiens cDNA  |
| 701                    | 13884                 |                   | 1.77                 | 7.0E-27                                       | Z70884.1                 | NT                            | Human endogenous retroviral element HC2   |
| 5201                   | 18322                 |                   | 2.19                 | 7.0E-27                                       | AW629172.1               | EST_HUMAN                     | H51H12.x1 Soares_NFL_T_GBC S1 Homo sapiens cDNA clone IMAGE:2876879 3' similar to TR:O76040   |
| 9058                   | 22137                 |                   | 0.97                 | 7.0E-27                                       | D89884.1                 | NT                            | O76040 ORF2: FUNCTION UNKNOWN. ;  |
| 10988                  | 24067                 |                   | 3.7                  | 7.0E-27                                       | AJ271735.1               | NT                            | Human mRNA for KIAA0231 gene, partial cds   |
| 10984                  | 24046                 | 37679             | 3.21                 | 6.0E-27                                       | M26697.1                 | NT                            | Homo sapiens Xq pseudautosomal region; segment 1/2  |
| 12094                  | 25074                 | 38781             | 1.55                 | 6.0E-27                                       | U63163.1                 | NT                            | Human nuclear protein (B23) mRNA, complete cds  |
| 7854                   | 21004                 |                   | 0.73                 | 5.0E-27                                       | AL163303.2               | NT                            | Homo sapiens IMAGE-B2 (IMAGE-B2), IMAGE-B3 (IMAGE-B3), IMAGE-B4 (IMAGE-B4), and IMAGE-B1 (IMAGE-B1) genes, complete cds             |
| 10442                  | 23477                 | 37081             | 3.21                 | 5.0E-27                                       | BF666614.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C103   |
| 10442                  | 23477                 | 37082             | 3.21                 | 5.0E-27                                       | BF666614.1               | EST_HUMAN                     | G02121491F1 NIH_MGC_56 Homo sapiens cDNA clone IMAGE:4278527 5'   |
| 6883                   | 20035                 | 33444             | 1.65                 | 4.0E-27                                       | 9810569                  | NT                            | G02121491F1 NIH_MGC_56 Homo sapiens cDNA clone IMAGE:4278527 5'   |
|                        |                       |                   |                      |   |                          |                               | Mus musculus sperm tail associated protein (Slap), mRNA   |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 8126                   | 21207                 |                   | 0.88                 | 4.0E-27                                       | AL163209.2               | NT                            | Homo sapiens chromosome 21 segment HS21C009  |
| 8172                   | 21254                 |                   | 1.31                 | 4.0E-27                                       | AF078779.1               | NT                            | Rattus norvegicus putative four repeat ion channel mRNA, complete cds                                  |
| 8846                   | 22884                 | 36577             | 0.61                 | 4.0E-27                                       | AW890659.1               | EST_HUMAN                     | QV0-OT0033-070300-152-510 OT0033 Homo sapiens cDNA   |
| 11903                  | 24891                 | 38592             | 2.62                 | 4.0E-27                                       | X89211.1                 | NT                            | H. sapiens DNA for endogenous retroviral like element  |
| 13273                  | 26080                 | 31685             | 1.17                 | 4.0E-27                                       | AL163279.2               | NT                            | Homo sapiens chromosome 21 segment HS21C079  |
| 2009                   | 16239                 | 28361             | 7.1                  | 3.0E-27                                       | X60658.1                 | NT                            | R. rattus RYA3 mRNA for a potential ligand-binding protein   |
| 4386                   | 17529                 | 30510             | 1.55                 | 3.0E-27                                       | BE071924.1               | EST_HUMAN                     | PMO-BT0527-080100-001-411 BT0527 Homo sapiens cDNA   |
| 5462                   | 18832                 | 31641             | 6.81                 | 3.0E-27                                       | AA077705.1               | EST_HUMAN                     | 7B44C08 Chromosome 7 Fetal Brain cDNA Library Homo sapiens cDNA clone 7B44C08                          |
| 9505                   | 22771                 | 36342             | 3.49                 | 3.0E-27                                       | BF036327.1               | EST_HUMAN                     | 601458531F1 NIH_MGC_68 Homo sapiens cDNA clone IMAGE:3882088 5'  |
| 42                     | 13280                 | 28266             | 9.28                 | 2.0E-27                                       | AF054187.1               | NT                            | Homo sapiens alpha NAC mRNA, complete cds  |
| 1944                   | 15087                 |                   | 24.24                | 2.0E-27                                       | AA565345.1               | EST_HUMAN                     | nt01b10.61 NCL CGAP_P11 Homo sapiens cDNA clone IMAGE:1000698 similar to gb:M17886 60S                 |
| 3178                   | 16353                 |                   | 13.94                | 2.0E-27                                       | AW628172.1               | EST_HUMAN                     | nt51h12x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2875879 3' similar to TR-O76040            |
| 3298                   | 16470                 | 29489             | 1.45                 | 2.0E-27                                       | AF111167.2               | NT                            | Homo sapiens jun dimerization protein gene, partial cds; cfos gene, complete cds; and unknown gene     |
| 3298                   | 16470                 | 29490             | 1.45                 | 2.0E-27                                       | AF111167.2               | NT                            | Homo sapiens jun dimerization protein gene, partial cds; cfos gene, complete cds; and unknown gene     |
| 6814                   | 18987                 | 33373             | 0.79                 | 2.0E-27                                       | H02855.1                 | EST_HUMAN                     | X36801.1 Soares placenta N624-P Homo sapiens cDNA clone IMAGE:150840 5' similar to                     |
| 8282                   | 21364                 | 34853             | 1.17                 | 2.0E-27                                       | AI865347.1               | EST_HUMAN                     | SP:HMGC_MOUSE Q02591 HOMEBOX PROTEIN;  |
| 9489                   | 22526                 |                   | 2.6                  | 2.0E-27                                       | AA551527.1               | EST_HUMAN                     | w28g07.x1 NCL CGAP_U11 Homo sapiens cDNA clone IMAGE:2426288 3'  |
| 9895                   | 23033                 | 36625             | 0.83                 | 2.0E-27                                       | X80658.1                 | NT                            | nt08h05.61 NCL CGAP_Thy1 Homo sapiens cDNA clone IMAGE:943737 similar to contains L1.13 L1             |
| 10241                  | 23276                 | 36898             | 1.45                 | 2.0E-27                                       | M78590.1                 | EST_HUMAN                     | repetitive element;  |
| 10241                  | 23276                 | 36899             | 1.45                 | 2.0E-27                                       | M78590.1                 | EST_HUMAN                     | R. rattus RYA3 mRNA for a potential ligand-binding protein   |
| 11197                  | 24266                 | 37801             | 3.91                 | 2.0E-27                                       | AU121685.1               | EST_HUMAN                     | EST100738 Fetal brain, Striatum (cat#836206) Homo sapiens cDNA clone HFBFCF07                          |
| 11777                  | 15087                 |                   | 6.43                 | 2.0E-27                                       | AA565345.1               | EST_HUMAN                     | EST100738 Fetal brain, Striatum (cat#836206) Homo sapiens cDNA clone HFBFCF07                          |
| 12107                  | 25087                 | 38701             | 1.64                 | 2.0E-27                                       | AF218650.1               | NT                            | AU121685 MAMMA1 Homo sapiens cDNA clone MAMMA100746 5'   |
| 449                    | 13645                 |                   | 2.94                 | 1.0E-27                                       | AL163248.2               | NT                            | nt01b10.61 NCL CGAP_P11 Homo sapiens cDNA clone IMAGE:1000698 similar to gb:M17886 60S                 |
| 1021                   | 14192                 | 27251             | 4.97                 | 1.0E-27                                       | AB028898.1               | NT                            | ACD/C RIBOSOMAL PROTEIN P1 (HUMAN);  |
| 6074                   | 18633                 | 33222             | 6.51                 | 1.0E-27                                       | 6005855                  | NT                            | Homo sapiens putative MTAP (MTAP) mRNA, partial cds, alternatively spliced                             |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens chromosome 21 segment HS21C049  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens DNA, DLEC1 to ORCTL4 gene region, section 1/2 (DLEC1, ORCTL3, ORCTL4 genes, complete cds) |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens Retina-derived POU-domain factor-1 (RPF-1), mRNA  |

Page 263 of 550

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 7010                   | 20146                 | 33568             | 1.65                 | 1.0E-27                                       | F30158.1                 | EST_HUMAN                     | HSPD20461 HM3 Homo sapiens cDNA clone s4000095C10   |
| 7010                   | 20146                 | 33567             | 1.65                 | 1.0E-27                                       | F30158.1                 | EST_HUMAN                     | HSPD20461 HM3 Homo sapiens cDNA clone s4000095C10   |
| 8809                   | 21888                 | 35430             | 1.16                 | 1.0E-27                                       | AB007923.1               | NT                            | Homo sapiens mRNA for KIAA0454 protein, partial cds   |
| 9188                   | 22264                 |                   | 1.69                 | 1.0E-27                                       | BE079780.1               | EST_HUMAN                     | RC3-BT0627-140200-011-E06 BT0627 Homo sapiens cDNA  |
| 9923                   | 22963                 | 36551             | 2.65                 | 1.0E-27                                       | D87449.1                 | NT                            | Human mRNA for KIAA0260 gene, partial cds   |
| 12005                  | 24690                 | 36694             | 3.05                 | 1.0E-27                                       | AF111093.1               | NT                            | Bos taurus lephrothin 3 splice variant b2b1 mRNA, complete cds  |
| 144                    | 13368                 |                   | 2.26                 | 9.0E-28                                       | BE348398.1               | EST_HUMAN                     | hw17c11.x1 NCL_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3183188 3' similar to TR-Q07314 Q07314   |
| 321                    | 13335                 | 26567             | 2.17                 | 9.0E-28                                       | AI126260.1               | EST_HUMAN                     | SECRETED NEUREXIN III-ALPHA-C PRECURSOR, [3] TR-Q07280 TR-Q07313 ;  |
| 10801                  | 23638                 | 37243             | 0.47                 | 9.0E-28                                       | AA174078.1               | EST_HUMAN                     | AI126260 NT2RP1 Homo sapiens cDNA clone NT2RP1000443 5'   |
| 12224                  | 26173                 |                   | 3.04                 | 9.0E-28                                       | BF377860.1               | EST_HUMAN                     | zp18g12.s1 Stratagene fetal retina 837202 Homo sapiens cDNA clone IMAGE:609662 3'   |
| 12665                  | 26003                 |                   | 13.39                | 8.0E-28                                       | AW167571.1               | EST_HUMAN                     | CM2-TN0140-070900-372-g01 TN0140 Homo sapiens cDNA  |
| 1208                   | 14370                 | 27430             | 11.5                 | 7.0E-28                                       | AI142750.1               | EST_HUMAN                     | ai83h08.x1 Schneider fetal brain 00004 Homo sapiens cDNA clone IMAGE:2782011 3' similar to TR-Q03002 Q03002 KIAA0656 PROTEIN, contains element MER22 repetitive element ; |
| 11463                  | 24822                 | 38182             | 1.65                 | 7.0E-28                                       | 11417866                 | NT                            | AI142750 Y78AA1 Homo sapiens cDNA clone Y78AA1000824 5'   |
| 12181                  | 26141                 |                   | 5.04                 | 7.0E-28                                       | AV73348.1                | EST_HUMAN                     | Homo sapiens gamma-glutamyltransferase-like activity 1 (GGTLA1), mRNA   |
| 9119                   | 22198                 |                   | 1.28                 | 8.0E-28                                       | AF016062.1               | NT                            | AV73348 CB Homo sapiens cDNA clone CBFAKA12 5'  |
| 12866                  | 25577                 |                   | 5.92                 | 6.0E-28                                       | AA504562.1               | EST_HUMAN                     | Homo sapiens zinc finger protein ZNF181 (ZNF181) gene, complete cds   |
| 328                    | 13542                 |                   | 2.75                 | 5.0E-28                                       | AI921003.1               | EST_HUMAN                     | sa60e03.r1 NCL_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:325340 5' similar to contains Alu  |
| 4116                   | 17270                 | 30269             | 39.94                | 5.0E-28                                       | R79762.1                 | EST_HUMAN                     | repetitive element/contains element PTR5 repetitive element ;   |
| 2689                   | 16909                 | 28326             | 1.46                 | 4.0E-28                                       | AW195069.1               | EST_HUMAN                     | Wt18c07.x1 NCL_CGAP_Pan1 Homo sapiens cDNA clone IMAGE:2455692 3' similar to contains THR.b1  |
| 3177                   | 16352                 | 28368             | 1.34                 | 4.0E-28                                       | BE409100.1               | EST_HUMAN                     | THR repetitive element ;  |
| 7483                   | 20598                 | 34030             | 3.56                 | 4.0E-28                                       | AI188941.1               | EST_HUMAN                     | Y89F10.1 Soares placenta Niz2HP Homo sapiens cDNA clone IMAGE:146443 5'   |
| 11105                  | 24177                 |                   | 4.19                 | 4.0E-28                                       | AF028308.1               | NT                            | Y89F10.x1 NCL_CGAP_Kid11 Homo sapiens cDNA clone IMAGE:2695604 3' similar to SW:GG95_HUMAN  |
| 11255                  | 24324                 |                   | 14.89                | 4.0E-28                                       | AB038241.1               | NT                            | Q08379 GOLGIN-65 ;  |
| 11278                  | 20568                 | 34030             | 4.34                 | 4.0E-28                                       | AI188941.1               | EST_HUMAN                     | G01300703F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3636305 5'   |
| 12822                  | 25418                 |                   | 1.7                  | 4.0E-28                                       | AW654244.1               | EST_HUMAN                     | qf66f10.x1 Soares testis NHT Homo sapiens cDNA clone IMAGE:1755019 3' similar to gb-M19503 LINE-1   |
| 12773                  | 26098                 |                   | 1.62                 | 4.0E-28                                       | AW862350.1               | EST_HUMAN                     | REVERSE TRANSCRIPTASE HOMOLOG (HUMAN);  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens chromosome 9 duplication of the T cell receptor beta locus and tyrosinogen gene families   |
|                        |                       |                   |                      |   |                          |                               | Felis catus GAPDH mRNA for glyceraldehyde-3-phosphate dehydrogenase, complete cds   |
|                        |                       |                   |                      |   |                          |                               | qf66f10.x1 Soares testis NHT Homo sapiens cDNA clone IMAGE:1755019 3' similar to gb-M19503 LINE-1   |
|                        |                       |                   |                      |   |                          |                               | REVERSE TRANSCRIPTASE HOMOLOG (HUMAN);  |
|                        |                       |                   |                      |   |                          |                               | RC3-CT0254-240400-210-112 CT0254 Homo sapiens cDNA  |
|                        |                       |                   |                      |   |                          |                               | RC3-CT0378-070100-031-001 CT0378 Homo sapiens cDNA  |

Page 264 of 550  
Table 4  
Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 1312                   | 14468                 |                   | 2.29                 | 3.0E-28                                       | AF155382.1               | NT                            | Human sapiens metalloprotease-like, disintegrin-like, cysteine-rich protein 2 epsilon (ADAM22) mRNA, complete cds                                    |
| 5227                   | 18349                 |                   | 0.94                 | 3.0E-28                                       | AF009880.1               | NT                            | Human sapiens T cell receptor beta locus, TCRBV7S3A2 to TCRBV12S2 region   |
| 9027                   | 22106                 | 35647             | 2.28                 | 3.0E-28                                       | BF354030.1               | EST_HUMAN                     | MR3-HT0713-280500-013-09 HT0713 Homo sapiens cDNA  |
| 11176                  | 24245                 | 37878             | 2.09                 | 3.0E-28                                       | U53888.1                 | NT                            | Human sapiens MHC class 1 region   |
| 12853                  | 25433                 |                   | 3.77                 | 3.0E-28                                       | A831981.1                | EST_HUMAN                     | w8807.x1 NCI CGAP_Lym12 Homo sapiens cDNA clone IMAGE:2410885 3' similar to contains Alu repetitive element; contains element HGR repetitive element |
| 12803                  | 25536                 |                   | 3.29                 | 3.0E-28                                       | BE082801.1               | EST_HUMAN                     | RC2-BT0842-210200-013-03 BT0842 Homo sapiens cDNA  |
| 12865                  | 25576                 | 31983             | 1.22                 | 3.0E-28                                       | 11430460                 | NT                            | Human sapiens low density lipoprotein-related protein 2 (LRP2), mRNA   |
| 12865                  | 25576                 | 31984             | 1.22                 | 3.0E-28                                       | 11430460                 | NT                            | Human sapiens low density lipoprotein-related protein 2 (LRP2), mRNA   |
| 91                     | 13328                 | 26354             | 12.79                | 2.0E-28                                       | BE062187.1               | EST_HUMAN                     | RC1-BT0254-220300-019-c05 BT0254 Homo sapiens cDNA   |
| 1191                   | 14353                 | 27411             | 9.24                 | 2.0E-28                                       | Y11107.3                 | NT                            | Human sapiens ITGB4 gene for integrin beta 4 subunit, exons 3-41   |
| 2546                   | 16671                 | 28795             | 2.16                 | 2.0E-28                                       | A1348834.1               | EST_HUMAN                     | qp35x06.x1 NCI CGAP_Lu6 Homo sapiens cDNA clone IMAGE:1910483 3' similar to contains L1.b2 L1 repetitive element                                     |
| 3446                   | 16614                 | 29632             | 0.81                 | 2.0E-28                                       | AL163209.2               | NT                            | Human sapiens chromosome 21 segment HS21C009   |
| 6437                   | 19604                 | 32968             | 1.48                 | 2.0E-28                                       | BF224402.1               | EST_HUMAN                     | hr76cd03.x1 NCI CGAP_JQM11 Homo sapiens cDNA clone IMAGE:3134404 3' similar to contains LOR1.b1 LOR1 repetitive element                              |
| 6460                   | 19627                 |                   | 3                    | 2.0E-28                                       | BF212805.1               | EST_HUMAN                     | 601814198F1 NIH_MGC_54 Homo sapiens cDNA clone IMAGE:4048751 5'  |
| 8234                   | 21316                 | 34837             | 0.53                 | 2.0E-28                                       | AF005273.1               | NT                            | Sus scrofa domestica submaxillary apomucin mRNA, complete cds  |
| 9783                   | 22823                 |                   | 2.23                 | 2.0E-28                                       | AW972305.1               | EST_HUMAN                     | EST384394 IMAGE resequences, MAGL Homo sapiens cDNA  |
| 11913                  | 24900                 | 38803             | 2.52                 | 2.0E-28                                       | AF224680.1               | NT                            | Human sapiens mannosidase, beta A, lysosomal (MANBA) gene, and ubiquitin-conjugating enzyme E2D 3 (UBE2D3) genes, complete cds                       |
| 12631                  | 25424                 |                   | 1.74                 | 2.0E-28                                       | H06378.1                 | EST_HUMAN                     | y78cd09.r1 Soares infant brain 1N1B Homo sapiens cDNA clone IMAGE:44300 5'   |
| 1508                   | 14661                 | 27744             | 2.85                 | 1.0E-28                                       | D38044.1                 | NT                            | Human gene for Ah-receptor, exon 7-9   |
| 2294                   | 15423                 | 28560             | 3.91                 | 1.0E-28                                       | BF333236.1               | EST_HUMAN                     | QV1-BT0821-120900-360-603 BT0821 Homo sapiens cDNA   |
| 4691                   | 17823                 |                   | 0.95                 | 1.0E-28                                       | U09410.1                 | NT                            | Human zinc finger protein ZNF131 mRNA, partial cds   |
| 8044                   | 21127                 |                   | 1.95                 | 1.0E-28                                       | 11428885                 | NT                            | Human sapiens similar to ribosomal protein L12 (H. sapiens) (LOC808091), mRNA  |
| 8208                   | 21290                 |                   | 3.03                 | 1.0E-28                                       | 8922793                  | NT                            | Human sapiens hypothetical protein FLJ10968 (FLJ10968), mRNA   |
| 9478                   | 22535                 | 36089             | 4.75                 | 1.0E-28                                       | AA308744.1               | EST_HUMAN                     | EST179615 HOC cell line (metastasis to liver in mouse) II Homo sapiens cDNA 5' end similar to similar to retroviral LTR                              |
| 10090                  | 23118                 | 36720             | 5.91                 | 1.0E-28                                       | 4759431                  | NT                            | Human sapiens gamma-glutamyltransferase-like activity 1 (GGT1A1), mRNA   |
| 10080                  | 23118                 | 36721             | 5.91                 | 1.0E-28                                       | 4759431                  | NT                            | Human sapiens gamma-glutamyltransferase-like activity 1 (GGT1A1), mRNA   |
| 12186                  | 25145                 |                   | 7.68                 | 1.0E-28                                       | AA054182.1               | EST_HUMAN                     | 265cd01.r1 Soares retina N2b4f1R Homo sapiens cDNA clone IMAGE:380448 5'   |
| 13013                  | 25981                 |                   | 4.58                 | 1.0E-28                                       | AL163247.2               | NT                            | Human sapiens chromosome 21 segment HS21C047   |

Page 265 of 550

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 13135                  | 26122                 | 31643             | 1.8                  | 9.0E-28                                       | AW683987.1               | EST_HUMAN                     | h17g06.x1 Scores_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2878268 3'                          |
| 12752                  | 25498                 |                   | 2.57                 | 8.0E-28                                       | Q00130                   | SWISSPROT                     | HYPOTHETICAL GENE 60 PROTEIN  |
| 16932                  | 14784                 | 27870             | 1.98                 | 7.0E-28                                       | AW986447.1               | EST_HUMAN                     | EST1376521 IMAGE resequences, MAGI Homo sapiens cDNA  |
| 13197                  | 25779                 |                   | 9.08                 | 7.0E-28                                       | AJ132352.1               | NT                            | Rattus norvegicus mRNA for 45 kDa secretory protein, partial                                    |
| 608                    | 13797                 | 26817             | 9.39                 | 8.0E-28                                       | A893748.1                | EST_HUMAN                     | wp66b01.x1 NCI CGAP_Bm25 Homo sapiens cDNA clone IMAGE:2466985 3' similar to TR:O15475          |
| 12465                  | 25342                 |                   | 6.19                 | 6.0E-28                                       | BE940438.1               | EST_HUMAN                     | O15475 UNNAMED HERV.H PROTEIN ; contains LTR7 b1 LTR7 repetitive element ;                      |
| 12587                  | 25395                 |                   | 2.1                  | 6.0E-28                                       | BF568087.1               | EST_HUMAN                     | RC3-UT0062-210800-021-c08 UT0062 Homo sapiens cDNA  |
| 5113                   | 18241                 |                   | 2.39                 | 5.0E-28                                       | AL163203.2               | NT                            | 60218-082F1 NIH_MGC_42 Homo sapiens cDNA clone IMAGE:4300079 5'                                 |
| 8829                   | 22008                 |                   | 8.35                 | 5.0E-28                                       | AW887541.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C003   |
| 12795                  | 25531                 |                   | 1.49                 | 5.0E-28                                       | BE812448.1               | EST_HUMAN                     | RC3-OT0091-170300-011-c12 OT0091 Homo sapiens cDNA  |
| 3304                   | 16478                 |                   | 2.28                 | 4.0E-28                                       | AJ752367.1               | EST_HUMAN                     | 601451827F1 NIH_MGC_66 Homo sapiens cDNA clone IMAGE:3855728 5'                                 |
| 6133                   | 18312                 |                   | 7.06                 | 4.0E-28                                       | BE184830.1               | EST_HUMAN                     | cn15c02.x1 Normal Human Trabecular Bone Cells Homo sapiens cDNA clone NHTBC_cn15c02 random      |
| 8272                   | 21354                 | 34870             | 0.84                 | 4.0E-28                                       | AJ678101.1               | EST_HUMAN                     | QV1-HT0471-280300-121-a05 HT0471 Homo sapiens cDNA  |
| 8272                   | 21354                 | 34871             | 0.84                 | 4.0E-28                                       | AJ678101.1               | EST_HUMAN                     | wd35g06.x1 Scores_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2830170 3' similar to contains     |
| 8944                   | 22023                 | 35563             | 3.59                 | 4.0E-28                                       | J04988.1                 | NT                            | MER29.12 MER29 repetitive element ;   |
| 4536                   | 17674                 | 30868             | 1.31                 | 3.0E-28                                       | AB042287.1               | NT                            | Human 90 kD heat shock protein gene, complete cds   |
| 4855                   | 17968                 | 30976             | 1.1                  | 3.0E-28                                       | BF338238.1               | EST_HUMAN                     | Homo sapiens PTS gene for 6-pyruvoylhistidinol synthase, complete cds                           |
| 6063                   | 19235                 | 32500             | 0.83                 | 3.0E-28                                       | BE314018.1               | EST_HUMAN                     | QV1-BT0821-120800-360-b03 BT0821 Homo sapiens cDNA  |
| 8831                   | 22010                 | 35548             | 3.23                 | 3.0E-28                                       | D38044.1                 | NT                            | 601162857F1 NIH_MGC_19 Homo sapiens cDNA clone IMAGE:3508627 5'                                 |
|                        |                       |                   |                      |   |                          |                               | Human gene for Ah-receptor, exon 7-9  |
| 9500                   | 22658                 | 36119             | 1.22                 | 3.0E-28                                       | AW303317.1               | EST_HUMAN                     | pxv1703.x1 Scores_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2813405 3' similar to contains Alu |
| 9731                   | 22788                 |                   | 1.49                 | 3.0E-28                                       | AL168248.2               | NT                            | repetitive element; contains MER19.12 MER19 repetitive element ;                                |
| 10164                  | 23201                 |                   | 0.61                 | 3.0E-28                                       | BE360127.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C046   |
| 11546                  | 24602                 | 38278             | 2.26                 | 3.0E-28                                       | AA403053.1               | EST_HUMAN                     | h10g001.x1 NCI CGAP_KJ413 Homo sapiens cDNA clone IMAGE:3146256 3' similar to contains MER29.b3 |
| 12385                  | 25272                 |                   | 1.38                 | 3.0E-28                                       | D63882.1                 | NT                            | MER29 repetitive element ;  |
| 13092                  | 26132                 |                   | 1.62                 | 3.0E-28                                       | D63882.1                 | NT                            | z662301.f1 Scores_testis_NHT Homo sapiens cDNA clone IMAGE:7268890 5' similar to TR:G1335789    |
| 505                    | 13699                 | 28727             | 0.98                 | 2.0E-28                                       | AF064868.1               | NT                            | G1335789 GAG-POL POLYPROTEIN. ;   |
|                        |                       |                   |                      |   |                          |                               | Human HsLM15 mRNA for HsLM15, complete cds  |
|                        |                       |                   |                      |   |                          |                               | Human HsLM15 mRNA for HsLM15, complete cds  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens envelope protein RIC-6 (env) gene, complete cds                                    |
| 505                    | 13699                 | 28728             | 0.98                 | 2.0E-28                                       | AF064868.1               | NT                            | Homo sapiens envelope protein RIC-6 (env) gene, complete cds                                    |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 1563                   | 14718                 | 27794             | 7.8                  | 2.0E-28                                       | A1933604.1               | EST_HUMAN                     | wf65d10.x1 NCL_CGAP_U1 Homo sapiens cDNA clone IMAGE:2482563 3' similar to TR:O15546 O15546                                  |
| 1563                   | 14718                 | 27795             | 7.8                  | 2.0E-28                                       | A1933604.1               | EST_HUMAN                     | HERV-E ENVELOPE GLYCOPROTEIN;  |
| 1782                   | 14931                 | 28024             | 2.31                 | 2.0E-28                                       | X94900.1                 | NT                            | wf65d10.x1 NCL_CGAP_U1 Homo sapiens cDNA clone IMAGE:2482563 3' similar to TR:O15546 O15546                                  |
| 1782                   | 14931                 | 28025             | 2.31                 | 2.0E-28                                       | X94900.1                 | NT                            | HERV-E ENVELOPE GLYCOPROTEIN;  |
| 4394                   | 17537                 | 30516             | 2.55                 | 2.0E-28                                       | AL163268.2               | NT                            | H. sapiens mRNA for laminin-5, alpha3b chain   |
| 5946                   | 19132                 | 32446             | 0.78                 | 2.0E-28                                       | A1982459.1               | EST_HUMAN                     | H. sapiens mRNA for laminin-5, alpha3b chain   |
| 6309                   | 19481                 | 32835             | 1.49                 | 2.0E-28                                       | A1908418.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C088  |
| 7732                   | 19481                 | 32835             | 1.28                 | 2.0E-28                                       | A1908418.1               | EST_HUMAN                     | os71e04.x1 NCL_CGAP_GC2 Homo sapiens cDNA clone IMAGE:1610814 3' similar to contains L1.12 L1                                |
| 8164                   | 21246                 | 34768             | 1.16                 | 2.0E-28                                       | BE887157.1               | EST_HUMAN                     | repetitive element;  |
| 8777                   | 21856                 | 35398             | 0.91                 | 2.0E-28                                       | 10567821                 | NT                            | wf27g07.x1 Scores_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2356980 3' similar to contains element MER6 repetitive element; |
| 8777                   | 21856                 | 35399             | 0.91                 | 2.0E-28                                       | 10567821                 | NT                            | wf27g07.x1 Scores_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2356980 3' similar to contains element MER6 repetitive element; |
| 9708                   | 22757                 | 36327             | 2.78                 | 2.0E-28                                       | AL163248.2               | NT                            | 601442200F1 NIH_MGC_65 Homo sapiens cDNA clone IMAGE:3846648 5'  |
| 9708                   | 22757                 | 36328             | 2.78                 | 2.0E-28                                       | AL163248.2               | NT                            | Homo sapiens DNA-binding protein (LOC58242), mRNA  |
| 10444                  | 23479                 | 37084             | 3.65                 | 2.0E-28                                       | AL163248.2               | NT                            | Homo sapiens DNA-binding protein (LOC58242), mRNA  |
| 10444                  | 23479                 | 37085             | 3.65                 | 2.0E-28                                       | AL163248.2               | NT                            | Homo sapiens chromosome 21 segment HS21C048  |
| 11767                  | 24760                 |                   | 1.97                 | 2.0E-28                                       | 11426108                 | NT                            | Homo sapiens chromosome 21 segment HS21C048  |
| 8982                   | 22071                 | 35611             | 8.27                 | 1.0E-28                                       | AW983880.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C048  |
| 10850                  | 23883                 | 37503             | 2.81                 | 1.0E-28                                       | X60958.1                 | NT                            | Homo sapiens splicing factor similar to chn1 (SPF31), mRNA   |
| 6712                   | 19870                 | 33261             | 3.53                 | 9.0E-30                                       | AA781215.1               | EST_HUMAN                     | RC1-HN0003-220300-021-504 HN0003 Homo sapiens cDNA   |
| 12268                  | 28200                 |                   | 4.55                 | 9.0E-30                                       | 11422746                 | NT                            | Rattus RYA3 mRNA for a potential ligand-binding protein  |
| 6449                   | 19616                 |                   | 10.5                 | 8.0E-30                                       | F08988.1                 | EST_HUMAN                     | nz20c07.s1 NCL_CGAP_GC81 Homo sapiens cDNA clone IMAGE:1288332 3' similar to contains MER4.b1                                |
| 8465                   | 21546                 | 35078             | 2.26                 | 8.0E-30                                       | AA388873.1               | EST_HUMAN                     | MER4 repetitive element;   |
| 8882                   | 21981                 | 35495             | 2.79                 | 8.0E-30                                       | AI597072.1               | EST_HUMAN                     | Homo sapiens zinc/ferron regulated transporter-like (ZIRT), mRNA   |
| 1646                   | 14697                 |                   | 1.07                 | 7.0E-30                                       | BE091133.1               | EST_HUMAN                     | HS23F051 normalized infant brain cDNA Homo sapiens cDNA clone c-23F05  |
| 1814                   | 14983                 | 28056             | 1.57                 | 6.0E-30                                       | D26303.1                 | NT                            | EST97317 Thymus 1 Homo sapiens cDNA 5' end similar to EST containing O family repeat   |
| 3268                   | 16433                 | 29450             | 3.15                 | 6.0E-30                                       | BE008026.1               | EST_HUMAN                     | PT2.1_13_B11.r tumor2 Homo sapiens cDNA 3'   |
| 4881                   | 16433                 | 29450             | 1.02                 | 6.0E-30                                       | BE008026.1               | EST_HUMAN                     | PM4-BT0724-150400-004-d11 BT0724 Homo sapiens cDNA   |
| 10760                  | 23793                 | 37412             | 0.76                 | 6.0E-30                                       | AF177271.1               | NT                            | Human mRNA for integrin alpha subunit, complete cds  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 13161                  | 18485                 |                   | 1.75                 | 6.0E-30                                       | X51755.1                 | NT                            | Human lambda-immunoglobulin constant region complex (germline)                                   |
| 4121                   | 17276                 | 30274             | 43.22                | 5.0E-30                                       | A1309992.1               | EST_HUMAN                     | 1092093.x1 NCL_CGAP_CLL1 Homo sapiens cDNA clone IMAGE:2116276 3' similar to contains Alu        |
| 5353                   | 25928                 |                   | 5.79                 | 5.0E-30                                       | U87931.1                 | NT                            | Human acornitase hydratase (ACD2) gene, exon 7   |
| 11128                  | 24198                 |                   | 2.12                 | 5.0E-30                                       | AL163278.2               | NT                            | Homo sapiens chromosome 21 segment HS21C078  |
| 11423                  | 24484                 | 38148             | 2.76                 | 5.0E-30                                       | AL163210.2               | NT                            | Homo sapiens chromosome 21 segment HS21C010  |
| 11423                  | 24484                 | 38149             | 2.78                 | 5.0E-30                                       | AL163210.2               | NT                            | Homo sapiens chromosome 21 segment HS21C010  |
| 2210                   | 15344                 | 28470             | 2.38                 | 4.0E-30                                       | AW837471.1               | EST_HUMAN                     | QV3-DT0043-080200-080-c08 DT0043 Homo sapiens cDNA   |
| 2210                   | 15344                 | 28471             | 2.38                 | 4.0E-30                                       | AW837471.1               | EST_HUMAN                     | QV3-DT0043-080200-080-c08 DT0043 Homo sapiens cDNA   |
| 9106                   | 22185                 | 35728             | 1.55                 | 4.0E-30                                       | AW812488.1               | EST_HUMAN                     | QV3-DT0043-080200-080-c08 DT0043 Homo sapiens cDNA   |
| 1175                   | 14338                 |                   | 4.56                 | 3.0E-30                                       | A1338551.1               | EST_HUMAN                     | QV3-DT0043-080200-080-c08 DT0043 Homo sapiens cDNA   |
| 3853                   | 17013                 | 30013             | 1.15                 | 3.0E-30                                       | AF128893.1               | NT                            | contains MER29 b2 MER29 repetitive element;  |
| 8138                   | 21220                 |                   | 0.53                 | 3.0E-30                                       | AF078778.1               | NT                            | Homo sapiens telomerase reverse transcriptase (TERT) gene, exons 1-8                             |
| 8883                   | 21703                 |                   | 0.45                 | 3.0E-30                                       | AF078778.1               | NT                            | Rattus norvegicus putative four repeat ion channel mRNA, complete cds                            |
| 10849                  | 23683                 | 37284             | 0.74                 | 3.0E-30                                       | BE350127.1               | EST_HUMAN                     | Rattus norvegicus putative four repeat ion channel mRNA, complete cds                            |
| 11482                  | 24541                 | 38211             | 1.52                 | 3.0E-30                                       | P34056                   | SWISSPROT                     | h109-g01.x1 NCL_CGAP_Kid13 Homo sapiens cDNA clone IMAGE:3146266 3' similar to contains MER29 b3 |
| 892                    | 13876                 | 26808             | 1.42                 | 2.0E-30                                       | AW857315.1               | EST_HUMAN                     | MER29 repetitive element;  |
| 1108                   | 14273                 |                   | 2.53                 | 2.0E-30                                       | P08688.1                 | EST_HUMAN                     | TRANSCRIPTION FACTOR AP-2  |
| 1509                   | 14662                 | 27745             | 5.5                  | 2.0E-30                                       | BE175877.1               | EST_HUMAN                     | GM0-CT0307-310100-168-h03 CT0307 Homo sapiens cDNA   |
| 2779                   | 15895                 | 29005             | 9.83                 | 2.0E-30                                       | BE765232.1               | EST_HUMAN                     | HSC23F051 normalized infant brain cDNA Homo sapiens cDNA   |
| 2986                   | 16162                 | 29179             | 6.83                 | 2.0E-30                                       | AF114156.1               | NT                            | RC5-HT0582-110400-013-H08 HT0582 Homo sapiens cDNA   |
| 3889                   | 17048                 | 30048             | 1.95                 | 2.0E-30                                       | AW206881.1               | EST_HUMAN                     | IL2-NT0101-280700-116-E04 NT0101 Homo sapiens cDNA   |
| 4900                   | 18030                 | 31018             | 2.02                 | 2.0E-30                                       | BE288945.1               | EST_HUMAN                     | Homo sapiens Y-linked zinc finger protein (ZFY) gene, complete cds                               |
| 4900                   | 18030                 | 31019             | 2.02                 | 2.0E-30                                       | BE288945.1               | EST_HUMAN                     | UIH-B11-efo-c-12-0-UJ.s1 NCL_CGAP_Sub3 Homo sapiens cDNA clone IMAGE:2722668 3'                  |
| 6734                   | 21814                 | 35349             | 4.89                 | 2.0E-30                                       | C18839.1                 | EST_HUMAN                     | 601119880F1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:3029438 5'                                  |
| 8836                   | 21615                 | 35452             | 1.71                 | 2.0E-30                                       | BE670617.1               | EST_HUMAN                     | 601119880F1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:3029438 5'                                  |
| 8836                   | 21615                 | 35453             | 1.71                 | 2.0E-30                                       | BE670617.1               | EST_HUMAN                     | C18839 Human placenta cDNA (TFIIJwara) Homo sapiens cDNA clone GEN-670C01 5'                     |
| 10201                  | 23238                 | 36828             | 3.78                 | 2.0E-30                                       | AW971588.1               | EST_HUMAN                     | 7687c12.x1 NCL_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3284682 3' similar to SW:DHSA_HUMAN       |
|                        |                       |                   |                      |   |                          |                               | P31040 SUCCINATE DEHYDROGENASE [UBIQUINONE] FLAVOPROTEIN SUBUNIT PRECURSOR ;                     |
|                        |                       |                   |                      |   |                          |                               | 7687c12.x1 NCL_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3284682 3' similar to SW:DHSA_HUMAN       |
|                        |                       |                   |                      |   |                          |                               | P31040 SUCCINATE DEHYDROGENASE [UBIQUINONE] FLAVOPROTEIN SUBUNIT PRECURSOR ;                     |
|                        |                       |                   |                      |   |                          |                               | EST383857 IMAGE resequences, MAGL Homo sapiens cDNA  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 10287                  | 23322                 | 36924             | 6.31                 | 2.0E-30                                       | AW470791.1               | EST_HUMAN                     | h833d03.x1 NCI_CGAP_Kid12 Homo sapiens cDNA clone IMAGE:2875469 3' similar to contains THIR.b3                                       |
| 297                    | 13514                 | 26548             | 10.87                | 1.0E-30                                       | C18939.1                 | EST_HUMAN                     | THIR repetitive element;<br>C18939 Human placenta cDNA (TF-ujivara) Homo sapiens cDNA clone GEN:570C01 5'                            |
| 561                    | 13744                 | 26760             | 1.62                 | 1.0E-30                                       | AW468997.1               | EST_HUMAN                     | h830b04.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2810691 3' similar to contains<br>MER1.33 MER1 MER1 repetitive element; |
| 734                    | 13918                 | 28958             | 5.15                 | 1.0E-30                                       | AL163203.2               | NT                            | Homo sapiens chromosome 21 segment HS21C003  |
| 2286                   | 15418                 | 28550             | 11.56                | 1.0E-30                                       | AA694377.1               | EST_HUMAN                     | ac77b08.s1 Stratiogene lung (#837210) Homo sapiens cDNA clone IMAGE:868589 3'  |
| 2633                   | 16658                 | 28782             | 2.15                 | 1.0E-30                                       | BF347728.1               | EST_HUMAN                     | 602022660F1 NCI_CGAP_Bm67 Homo sapiens cDNA clone IMAGE:4157991 5'   |
| 3120                   | 16296                 | 29310             | 0.91                 | 1.0E-30                                       | AA315045.1               | EST_HUMAN                     | EST188988 HCC cell line (matelastis to liver in mouse) II Homo sapiens cDNA 5' end   |
| 7901                   | 20953                 | 34460             | 1.96                 | 1.0E-30                                       | BF183230.1               | EST_HUMAN                     | 601808932F1 NIH_MGC_18 Homo sapiens cDNA clone IMAGE:4040694 5'  |
| 8176                   | 21258                 | 34780             | 0.49                 | 1.0E-30                                       | BE081588.1               | EST_HUMAN                     | MRO-BT0249-081269-101-g01 BT0249 Homo sapiens cDNA   |
| 12788                  | 26117                 |                   | 1.57                 | 1.0E-30                                       | AA289211.1               | EST_HUMAN                     | EST11698 Uterus Homo sapiens cDNA 5' end   |
| 12937                  | 20025                 |                   | 5.31                 | 1.0E-30                                       | H55583.1                 | EST_HUMAN                     | CHR220632 Chromosome 22 exon Homo sapiens cDNA clone C22_728 5'  |
| 3862                   | 17022                 | 30020             | 0.8                  | 9.0E-31                                       | TT3025.1                 | EST_HUMAN                     | yc65e06.r1 Stratiogene liver (#837224) Homo sapiens cDNA clone IMAGE:86570 5'  |
| 3862                   | 17022                 | 30021             | 0.8                  | 9.0E-31                                       | TT3025.1                 | EST_HUMAN                     | yc65e06.r1 Stratiogene liver (#837224) Homo sapiens cDNA clone IMAGE:85570 5'  |
| 8519                   | 21600                 | 35135             | 0.88                 | 9.0E-31                                       | R18214.1                 | EST_HUMAN                     | yc88b08.r1 Soares infant brain 1N18 Homo sapiens cDNA clone IMAGE:30568 5' similar to gbcX12953 RAS-RELATED PROTEIN RAB-2 (HUMAN);   |
| 8519                   | 21600                 | 35136             | 0.88                 | 9.0E-31                                       | R18214.1                 | EST_HUMAN                     | yc88b08.r1 Soares infant brain 1N18 Homo sapiens cDNA clone IMAGE:30568 5' similar to gbcX12953 RAS-RELATED PROTEIN RAB-2 (HUMAN);   |
| 8825                   | 21904                 |                   | 1.89                 | 9.0E-31                                       | Z38283.1                 | EST_HUMAN                     | HSC05F032 normalized infant brain cDNA Homo sapiens cDNA clone c-05f03 3'  |
| 8827                   | 21606                 | 35445             | 0.55                 | 9.0E-31                                       | AF078776.1               | NT                            | Rattus norvegicus putative four repeat ion channel mRNA, complete cds  |
| 13183                  | 26776                 | 31634             | 1.29                 | 9.0E-31                                       |                          | NT                            | Mus musculus syndecan 4 (Sdc4), mRNA   |
| 1102                   | 14267                 | 27325             | 2.52                 | 8.0E-31                                       |                          | NT                            | Homo sapiens hypothetical protein FLJ20420 (FLJ20420), mRNA  |
| 2484                   | 15611                 |                   | 7.83                 | 8.0E-31                                       | AL163208.2               | NT                            | Homo sapiens chromosome 21 segment HS21C008  |
| 729                    | 13911                 |                   | 1.69                 | 7.0E-31                                       | AA372637.1               | EST_HUMAN                     | EST84555 Colon adenocarcinoma IV Homo sapiens cDNA 5' end  |
| 2733                   | 15950                 | 28982             | 2.1                  | 7.0E-31                                       | BE328517.1               | EST_HUMAN                     | hw05a11.x1 NCI_CGAP_Ju24 Homo sapiens cDNA clone IMAGE:3182012 3'  |
| 2733                   | 15950                 | 28983             | 2.1                  | 7.0E-31                                       | BE328517.1               | EST_HUMAN                     | hw05a11.x1 NCI_CGAP_Ju24 Homo sapiens cDNA clone IMAGE:3182012 3'  |
| 8595                   | 21676                 | 35212             | 1.02                 | 7.0E-31                                       | AF208541.1               | NT                            | Homo sapiens V1-vascular vasopressin receptor AVPR1A gene, promoter region and partial cds   |
| 8595                   | 21676                 | 35213             | 1.02                 | 7.0E-31                                       | AF208541.1               | NT                            | Homo sapiens V1-vascular vasopressin receptor AVPR1A gene, promoter region and partial cds   |
| 9466                   | 22523                 |                   | 1.03                 | 7.0E-31                                       | BE408611.1               | EST_HUMAN                     | 601904125F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3638310 5'  |
|                        |                       |                   |                      |   |                          | NT                            | Homo sapiens calcium channel alpha1E subunit (CACNA1E) gene, exons 7-49, and partial cds, alternatively spliced                      |
| 3769                   | 16930                 |                   | 3.42                 | 6.0E-31                                       | AF223391.1               | NT                            |  |
| 8347                   | 21428                 |                   | 1.39                 | 6.0E-31                                       | AF055068.1               | NT                            | Homo sapiens MHC class 1 region  |

Page 269 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 8526                   | 21607                 | 35146             | 0.76                 | 6.0E-31                                       | BE350127.1               | EST_HUMAN                     | h08901.x1 NCI_CGAP_Kd13 Homo sapiens cDNA clone IMAGE:3146256 3' similar to contains MER29 b3         |
| 10976                  | 24065                 | 37089             | 1.43                 | 6.0E-31                                       | AU119105.1               | EST_HUMAN                     | MER29 repetitive element ;  |
| 12327                  | 25236                 | 32108             | 3.7                  | 6.0E-31                                       | AW372893.1               | EST_HUMAN                     | AU119105 HEMBA1 Homo sapiens cDNA clone HEMBA1005050 5'   |
| 12459                  | 26947                 |                   | 2.54                 | 6.0E-31                                       | BE894488.1               | EST_HUMAN                     | RG5-BT0377-081289-031-D12 BT0377 Homo sapiens cDNA  |
| 197                    | 13420                 | 26450             | 3.39                 | 5.0E-31                                       | M60694.1                 | NT                            | 601433097F1 NIH_MGC_72 Homo sapiens cDNA clone IMAGE:3918524 5'                                       |
| 197                    | 13420                 | 26451             | 3.39                 | 5.0E-31                                       | M60694.1                 | NT                            | Homo sapiens type I DNA topoisomerase gene, exon 8  |
| 8640                   | 21720                 |                   | 1.29                 | 5.0E-31                                       | BF056540.1               | EST_HUMAN                     | Homo sapiens type I DNA topoisomerase gene, exon 8  |
| 809                    | 13798                 |                   | 3.02                 | 4.0E-31                                       | AJ271735.1               | NT                            | 706804.x1 NCI_CGAP_G08 Homo sapiens cDNA clone IMAGE:3443479 3' similar to TR:Q13537 Q13537           |
| 1642                   | 14794                 | 27678             | 1.14                 | 4.0E-31                                       | Q10473                   | SWISSPROT                     | SIMILAR TO POGO ELEMENT ; contains L1 H L1 repetitive element ;                                       |
| 1861                   | 15007                 |                   | 2.09                 | 4.0E-31                                       | AL163280.2               | NT                            | Homo sapiens Xq pseudautosomal region; segment 1/2  |
| 2949                   | 16963                 |                   | 1.57                 | 4.0E-31                                       | 5730038                  | NT                            | POLYPEPTIDE N-ACETYL GALACTOSAMINYL TRANSFERASE (PROTEIN-UDP  |
| 10764                  | 23787                 | 37402             | 0.46                 | 4.0E-31                                       | AF084464.1               | NT                            | ACETYL GALACTOSAMINYL TRANSFERASE (UDP-GALNAC:POLYPEPTIDE, N-   |
| 12787                  | 25526                 |                   | 1.55                 | 4.0E-31                                       | 11430273                 | NT                            | ACETYL GALACTOSAMINYL TRANSFERASE (GALNAC-T1)   |
| 12924                  | 26509                 |                   | 2                    | 4.0E-31                                       | AB008681.1               | NT                            | Homo sapiens chromosome 21 segment HS21C080   |
| 2660                   | 15782                 | 28867             | 1.75                 | 3.0E-31                                       | 6005871                  | NT                            | Homo sapiens SET domain and mariner transposase fusion gene (SETMAR) mRNA                             |
| 7494                   | 20569                 | 34041             | 8.04                 | 3.0E-31                                       | 4825853                  | NT                            | Rattus norvegicus GTP-binding protein REM2 (Rem2) mRNA, complete cds                                  |
| 7663                   | 20730                 | 34206             | 1.23                 | 3.0E-31                                       | 11420329                 | NT                            | Homo sapiens KIAA0569 gene product (KIAA0569), mRNA   |
| 8355                   | 21436                 |                   | 1.51                 | 3.0E-31                                       | AL163208.2               | NT                            | Homo sapiens gene for activin receptor type IIB, complete cds   |
| 9779                   | 22819                 | 36397             | 2.59                 | 3.0E-31                                       | D14523.1                 | NT                            | Homo sapiens SEC63, endoplasmic reticulum translocon component (S. cerevisiae) like (SEC63L), mRNA    |
| 10822                  | 23855                 | 37477             | 0.86                 | 3.0E-31                                       | AA421242.1               | EST_HUMAN                     | Homo sapiens NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 8 (18kD, ASH1) (NDUFB8) mRNA          |
| 10867                  | 23962                 | 37682             | 2.03                 | 3.0E-31                                       | P11174                   | SWISSPROT                     | Homo sapiens hypothetical protein FLJ10842 (FLJ10842), mRNA   |
| 11421                  | 24482                 |                   | 3.47                 | 3.0E-31                                       | BF056327.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C006   |
| 1907                   | 15110                 | 28211             | 1.58                 | 2.0E-31                                       | AW838171.1               | EST_HUMAN                     | Horse mRNA for ferritin L-chain, complete cds   |
| 2288                   | 15420                 | 28552             | 1.05                 | 2.0E-31                                       | AJ393388.1               | EST_HUMAN                     | z066404.t1 Scores_bas1 NHT Homo sapiens cDNA clone IMAGE:731047 5'                                    |
| 2416                   | 15545                 | 28674             | 2.22                 | 2.0E-31                                       | AL119245.1               | EST_HUMAN                     | 40S RIBOSOMAL PROTEIN S15 (RIG PROTEIN)   |
| 2511                   | 15637                 | 28758             | 4.63                 | 2.0E-31                                       | AA458824.1               | EST_HUMAN                     | 601458531F1 NIH_MGC_60 Homo sapiens cDNA clone IMAGE:3862088 5'                                       |
| 5389                   | 18591                 | 31563             | 0.76                 | 2.0E-31                                       | AW444463.1               | EST_HUMAN                     | QV2.LT0051-260300-111-403 LT0051 Homo sapiens cDNA  |
|                        |                       |                   |                      |   |                          |                               | 1044905.x1 Scores_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2111672 3'                               |
|                        |                       |                   |                      |   |                          |                               | DKFZp761G1513 t1 761 (synonym: hamy2) Homo sapiens cDNA clone DKFZp761G1513 5'                        |
|                        |                       |                   |                      |   |                          |                               | aa88711.s1 Strabagene fetal retina 837202 Homo sapiens cDNA clone IMAGE:838413 3' similar to contains |
|                        |                       |                   |                      |   |                          |                               | THR12 THR repetitive element ;  |
|                        |                       |                   |                      |   |                          |                               | U1H-B18-abb-f09-0-U1.s1 NCI_CGAP_Sub5 Homo sapiens cDNA clone IMAGE:2733833 3'                        |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 5829                   | 19020                 | 32326             | 3.43                 | 2.0E-31                                       | BE350127.1               | EST_HUMAN                     | h08901.x1 NCL CGAP_Ku13 Homo sapiens cDNA clone IMAGE:3146256 3' similar to contains MER29.B3  |
| 9277                   | 22363                 |                   |                      |   |                          |                               | MER29 repetitive element;  |
| 9408                   | 22482                 |                   | 1.53                 | 2.0E-31                                       | AA877784.1               | EST_HUMAN                     | h06104.s1 NCL CGAP_Co10 Homo sapiens cDNA clone IMAGE:1161055 3' similar to TR-Q13537 Q13537   |
| 10110                  | 23146                 | 36046             | 3.46                 | 2.0E-31                                       | 7691536                  | NT                            | MER37 TRANSPOSABLE ELEMENT, COMPLETE CONSENSUS SEQUENCE.;  |
| 10110                  | 23148                 | 36748             | 1.1                  | 2.0E-31                                       | AV710948.1               | EST_HUMAN                     | Homo sapiens B9 protein (B9), mRNA   |
| 10280                  | 23315                 | 36914             | 1.1                  | 2.0E-31                                       | AV710948.1               | EST_HUMAN                     | AV710948 Cu Homo sapiens cDNA clone CUAALB07 6'  |
| 10280                  | 23315                 | 36915             | 2.75                 | 2.0E-31                                       | BE408611.1               | EST_HUMAN                     | AV710948 Cu Homo sapiens cDNA clone CUAALB07 6'  |
| 12430                  | 26305                 |                   | 2.75                 | 2.0E-31                                       | BE408611.1               | EST_HUMAN                     | 601304125F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3638310 5'  |
| 12578                  | 26202                 |                   | 3.49                 | 2.0E-31                                       | AF148512.1               | NT                            | 601304125F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3638310 5'  |
| 17                     | 13255                 |                   | 2.59                 | 2.0E-31                                       | AI114627.1               | EST_HUMAN                     | Homo sapiens hexokinase II gene, promoter region   |
| 1698                   | 14948                 | 26256             | 9.91                 | 1.0E-31                                       | UB3163.1                 | NT                            | HA1110 Human fetal liver cDNA library/Homo sapiens cDNA  |
| 1698                   | 14948                 | 27832             | 2.68                 | 1.0E-31                                       | O95371                   | SWISSPROT                     | Homo sapiens MAGE-B2 (MAGE-B2), MAGE-B3 (MAGE-B3), MAGE-B4 (MAGE-B4), and MAGE-B1 (MAGE-B1) genes, complete cds                      |
| 1698                   | 14948                 | 27833             | 2.68                 | 1.0E-31                                       | O95371                   | SWISSPROT                     | (MAGE-B1) genes, complete cds  |
| 1698                   | 14948                 | 27834             | 2.68                 | 1.0E-31                                       | O95371                   | SWISSPROT                     | OLFACTORY RECEPTOR 2C1   |
| 6407                   | 18609                 | 31581             | 3.97                 | 1.0E-31                                       | AW391679.1               | EST_HUMAN                     | OLFACTORY RECEPTOR 2C1   |
| 6281                   | 19435                 | 32781             | 2.57                 | 1.0E-31                                       | AF048727.1               | NT                            | MER3-ST0220-151209-028-408_1 ST0220 Homo sapiens cDNA  |
| 7441                   | 20518                 | 33990             | 0.94                 | 1.0E-31                                       | AF126145.1               | NT                            | Homo sapiens mitochondrial ccb1 repeat region  |
| 8005                   | 21055                 | 34587             | 1.35                 | 1.0E-31                                       | BE972818.1               | EST_HUMAN                     | Bos taurus xenobiotic/medium-chain fatty acid CoA ligase form XL-III mRNA, nuclear mRNA encoding mitochondrial protein, complete cds |
| 10441                  | 23476                 | 37080             | 0.5                  | 1.0E-31                                       | UB9163.1                 | NT                            | 601652052F1 NIH_MGC_82 Homo sapiens cDNA clone IMAGE:3835293 5'  |
| 11158                  | 24227                 | 37857             | 2.35                 | 1.0E-31                                       | A086434.1                | EST_HUMAN                     | Homo sapiens MAGE-B2 (MAGE-B2), MAGE-B3 (MAGE-B3), MAGE-B4 (MAGE-B4), and MAGE-B1 (MAGE-B1) genes, complete cds                      |
| 6778                   | 19631                 | 33327             | 2.19                 | 9.0E-32                                       | AV723976.1               | EST_HUMAN                     | q271h03.x1 NCL CGAP_Brn25 Homo sapiens cDNA clone IMAGE:1750709 3' similar to TR-Q16595  |
| 7530                   | 20603                 | 34077             | 0.88                 | 9.0E-32                                       | L31770.1                 | NT                            | Q16595 FRATAXIN.;  |
| 7766                   | 20825                 |                   | 0.91                 | 9.0E-32                                       | 11430822                 | NT                            | AV723978 HTB Homo sapiens cDNA clone HTBAAG01 6'   |
| 2139                   | 15275                 | 26397             | 5.1                  | 8.0E-32                                       | A056770.1                | EST_HUMAN                     | Bos taurus vacuolar H <sup>+</sup> -ATPase subunit mRNA, complete cds  |
| 5569                   | 18794                 | 31843             | 0.77                 | 8.0E-32                                       | AW067214.1               | EST_HUMAN                     | Homo sapiens hypothetical protein FLJ11294 (FLJ11294), mRNA  |
| 12406                  | 25285                 |                   | 2.98                 | 7.0E-32                                       | X17283.1                 | NT                            | h015409.x1 Scarsa_fetal_liver_spleen_1INFLS_S1 Homo sapiens cDNA clone IMAGE:1675384 3'  |
| 7523                   | 20568                 |                   | 1.32                 | 6.0E-32                                       | BE888016.1               | EST_HUMAN                     | RC2-BN0048-200300-015-604 BN0048 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | Human chromosome 22 immunoglobulin V(K) gene, part with 5' breakpoint between orphan and neighbouring non-amplified region           |
|                        |                       |                   |                      |   |                          |                               | 601511530F1 NIH_MGC_71 Homo sapiens cDNA clone IMAGE:3913087 5'  |

Page 271 of 550  
Table 4

Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 12868                  | 26181                 |                   | 2.5                  | 6.0E-32                                       | AA864653.1               | EST_HUMAN                     | ot37c03.s1 NCL_CGAP_K048 Homo sapiens cDNA clone IMAGE:1458972 3' similar to contains L1.13 L1<br>repetitive element:                       |
| 1059                   | 14225                 | 27282             | 10.42                | 6.0E-32                                       | AF116827.1               | NT                            | Homo sapiens PRO1181 mRNA, complete cds   |
| 954                    | 14127                 |                   | 1.84                 | 4.0E-32                                       | AL163246.2               | NT                            | Homo sapiens chromosome 21 segment HS21G046   |
| 7779                   | 20835                 | 34326             | 3.4                  | 4.0E-32                                       | 11432574                 | NT                            | Homo sapiens AT-binding transcription factor 1 (ATBF1), mRNA  |
| 7779                   | 20835                 | 34327             | 3.4                  | 4.0E-32                                       | 11432574                 | NT                            | Homo sapiens AT-binding transcription factor 1 (ATBF1), mRNA  |
| 8554                   | 21635                 |                   | 0.93                 | 4.0E-32                                       | BE064410.1               | EST_HUMAN                     | RC4-BT0311-141198-011-h06 BT0311 Homo sapiens cDNA  |
| 468                    | 13693                 | 26699             | 2.84                 | 3.0E-32                                       | Y17283.1                 | NT                            | Homo sapiens FL-1 gene, partial   |
| 1484                   | 14637                 | 27721             | 15.82                | 3.0E-32                                       | AV731500.1               | EST_HUMAN                     | AV731500 HTF Homo sapiens cDNA clone HTFAK007 5'  |
| 2973                   | 16149                 | 29168             | 0.75                 | 3.0E-32                                       | 6174574                  | NT                            | Homo sapiens myeloid/lymphoid or mixed-lineage leukemia (trithorax (Drosophila) homolog), translocated to, 4<br>(MLLT4) mRNA                |
| 2973                   | 16149                 | 29169             | 0.75                 | 3.0E-32                                       | 5174574                  | NT                            | Homo sapiens myeloid/lymphoid or mixed-lineage leukemia (trithorax (Drosophila) homolog), translocated to, 4<br>(MLLT4) mRNA                |
| 9594                   | 22849                 | 36221             | 3.1                  | 3.0E-32                                       | AV758634.1               | EST_HUMAN                     | AV758634 BM Homo sapiens cDNA clone BMFBH12 5'  |
| 9594                   | 22849                 | 36222             | 3.1                  | 3.0E-32                                       | AV758634.1               | EST_HUMAN                     | AV758634 BM Homo sapiens cDNA clone BMFBH12 5'  |
| 11166                  | 24237                 | 37658             | 3.43                 | 3.0E-32                                       | AA777621.1               | EST_HUMAN                     | z656d07.S1 Soares_fetal_liver_spleen_INFLS_S1 Homo sapiens cDNA clone IMAGE:448500 3' similar to<br>contains THR.13 THR repetitive element: |
| 12433                  | 25307                 |                   | 7.95                 | 3.0E-32                                       | BE278086.1               | EST_HUMAN                     | G01156285F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3139701 5'   |
| 12843                  | 16149                 | 29168             | 4.95                 | 3.0E-32                                       | 6174574                  | NT                            | Homo sapiens myeloid/lymphoid or mixed-lineage leukemia (trithorax (Drosophila) homolog), translocated to, 4<br>(MLLT4) mRNA                |
| 12843                  | 16149                 | 29169             | 4.95                 | 3.0E-32                                       | 5174574                  | NT                            | Homo sapiens myeloid/lymphoid or mixed-lineage leukemia (trithorax (Drosophila) homolog), translocated to, 4<br>(MLLT4) mRNA                |
| 13020                  | 26671                 |                   | 6.47                 | 3.0E-32                                       | BE278086.1               | EST_HUMAN                     | G01156285F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3139701 5'   |
| 6382                   | 19551                 | 32807             | 0.89                 | 2.0E-32                                       | M35418.1                 | NT                            | Human cell 12-lipoxygenase mRNA, complete cds   |
| 6808                   | 19768                 | 33156             | 5.55                 | 2.0E-32                                       | Z38133.1                 | NT                            | H. sapiens mRNA for myosin  |
| 6608                   | 16768                 | 33157             | 5.55                 | 2.0E-32                                       | Z38133.1                 | NT                            | H. sapiens mRNA for myosin  |
| 8473                   | 21554                 | 35086             | 3.24                 | 2.0E-32                                       | AA114294.1               | EST_HUMAN                     | z666c08.r1 Striatogene HeLa cell s3 937216 Homo sapiens cDNA clone IMAGE:563150 5'  |
| 8473                   | 21554                 | 35086             | 3.24                 | 2.0E-32                                       | AA114294.1               | EST_HUMAN                     | z666c08.r1 Striatogene HeLa cell s3 937216 Homo sapiens cDNA clone IMAGE:563150 5'  |
| 13154                  | 25750                 | 31923             | 1.28                 | 2.0E-32                                       | AV738449.1               | EST_HUMAN                     | AV738449 CB Homo sapiens cDNA clone CBFBIA08 5'   |
| 13154                  | 25750                 | 31924             | 1.28                 | 2.0E-32                                       | AV738449.1               | EST_HUMAN                     | AV738449 CB Homo sapiens cDNA clone CBFBIA08 5'   |
| 3163                   | 16338                 |                   | 1.25                 | 1.0E-32                                       | BE743289.1               | EST_HUMAN                     | G01573207F1 NIH_MGC_9 Homo sapiens cDNA clone IMAGE:383439 5'   |
| 7200                   | 20665                 | 33476             | 6.64                 | 1.0E-32                                       | 11439789                 | NT                            | Homo sapiens chromosome 11 open reading frame 9 (C11ORF9), mRNA   |
| 8795                   | 21874                 | 35413             | 4.59                 | 1.0E-32                                       | AA720574.1               | EST_HUMAN                     | hw21g02.s1 NCL_CGAP_GC80 Homo sapiens cDNA clone IMAGE:1241139 3' similar to contains THR.13<br>THR repetitive element:                     |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 3570                   | 16735                 |                   | 4.8                  | 9.0E-33                                       | BE327112.1               | EST_HUMAN                     | hw07c05.x1 NCL_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3182216 3' similar to TR:O88539 O88539                       |
| 6650                   | 16712                 |                   | 3.17                 | 9.0E-33                                       | AF223391.1               | NT                            | WW DOMAIN BINDING PROTEIN 11.;  |
| 8988                   | 22067                 | 36607             | 1.81                 | 9.0E-33                                       | BF347220.1               | EST_HUMAN                     | Homo sapiens calcium channel alpha1E subunit (CACNA1E) gene, exons 7-49, and partial cds, alternatively spliced     |
| 11038                  | 24117                 |                   | 4.55                 | 9.0E-33                                       | AL163280.2               | NT                            | 802021164F1 NCL_CGAP_Bm67 Homo sapiens cDNA clone IMAGE:4156670 5'  |
| 62                     | 13300                 | 26320             | 2.73                 | 7.0E-33                                       | 5031736                  | NT                            | Homo sapiens chromosome 21 segment HS21C080   |
| 62                     | 13300                 | 26321             | 2.73                 | 7.0E-33                                       | 5031736                  | NT                            | Homo sapiens short-chain alcohol dehydrogenase family member (HEP27) mRNA   |
| 2228                   | 15982                 | 28491             | 3.04                 | 7.0E-33                                       | AI690115.1               | EST_HUMAN                     | Homo sapiens short-chain alcohol dehydrogenase family member (HEP27) mRNA   |
| 2714                   | 15932                 |                   | 7.95                 | 7.0E-33                                       | AV730056.1               | EST_HUMAN                     | AV730056 HTF Homo sapiens cDNA clone HTFAVE08 5'  |
| 3314                   | 16487                 |                   | 15                   | 7.0E-33                                       | AW971907.1               | EST_HUMAN                     | EST383306 MAGE resequences, MAGL Homo sapiens cDNA  |
| 9147                   | 22228                 |                   | 0.87                 | 7.0E-33                                       | X54890.1                 | NT                            | Human ILRP mRNA for leukocyte common antigen-related peptide (protein-tyrosine phosphate) (EC 3.1.3.48)             |
| 11067                  | 24142                 | 37777             | 1.88                 | 7.0E-33                                       | BF347228.1               | EST_HUMAN                     | 802021164F1 NCL_CGAP_Bm67 Homo sapiens cDNA clone IMAGE:4156670 5'  |
| 11526                  | 24882                 | 38268             | 1.59                 | 7.0E-33                                       | AW971908.1               | EST_HUMAN                     | EST383357 MAGE resequences, MAGL Homo sapiens cDNA  |
| 12413                  | 26282                 | 32082             | 9.74                 | 7.0E-33                                       | AA601416.1               | EST_HUMAN                     | na16h01.s1 NCL_CGAP_Phe1 Homo sapiens cDNA clone IMAGE:1100881 3' similar to contains L.1.H L.1 repetitive element; |
| 3830                   | 18990                 |                   | 0.93                 | 6.0E-33                                       | AL163285.2               | NT                            | Homo sapiens chromosome 21 segment HS21C085   |
| 6192                   | 19368                 | 32717             | 0.91                 | 6.0E-33                                       | F30631.1                 | EST_HUMAN                     | HSPD21201 HM3 Homo sapiens cDNA clone e4000107H06   |
| 6192                   | 19368                 | 32718             | 0.91                 | 6.0E-33                                       | F30631.1                 | EST_HUMAN                     | HSPD21201 HM3 Homo sapiens cDNA clone e4000107H08   |
| 8778                   | 21657                 | 35400             | 1.86                 | 6.0E-33                                       | J04038.1                 | NT                            | Human glyceraldehyde-3-phosphate dehydrogenase (GAPDH) gene, complete cds   |
| 8899                   | 21678                 | 35517             | 3.12                 | 6.0E-33                                       | 11429186                 | NT                            | Homo sapiens similar to RAD23 (S. cerevisiae) homolog B (H. sapiens) (LOC83277), mRNA                               |
| 10214                  | 23250                 | 36839             | 2.03                 | 6.0E-33                                       | 6755309                  | NT                            | Mus musculus SRY-box containing gene 6 (Sox6), mRNA   |
| 10214                  | 23250                 | 36840             | 2.03                 | 6.0E-33                                       | 6755309                  | NT                            | Mus musculus SRY-box containing gene 6 (Sox6), mRNA   |
| 1818                   | 14987                 |                   | 1.9                  | 5.0E-33                                       | BF379515.1               | EST_HUMAN                     | QV1-FTD169-100700-271-a02 FT0169 Homo sapiens cDNA  |
| 1931                   | 15074                 |                   | 1.32                 | 5.0E-33                                       | 11141884                 | NT                            | Homo sapiens solute carrier family 5 (choline transporter), member 7 (SLC6A7), mRNA                                 |
| 1947                   | 15090                 | 28190             | 1.63                 | 5.0E-33                                       | 4507208                  | NT                            | Homo sapiens spermidine synthase (SRM) mRNA   |
| 1947                   | 15090                 | 28191             | 1.63                 | 5.0E-33                                       | 4507208                  | NT                            | Homo sapiens spermidine synthase (SRM) mRNA   |
| 2346                   | 15477                 |                   | 2.92                 | 5.0E-33                                       | AL163285.2               | NT                            | Homo sapiens chromosome 21 segment HS21C086   |
| 4169                   | 17319                 | 30312             | 0.66                 | 5.0E-33                                       | AB014599.1               | NT                            | Homo sapiens mRNA for KIAA0699 protein, partial cds   |
| 10454                  | 23489                 | 37097             | 0.82                 | 5.0E-33                                       | AW264678.1               | EST_HUMAN                     | xq33f11.x1 NCL_CGAP_Lu28 Homo sapiens cDNA clone IMAGE:2762461 3'   |
| 10454                  | 23489                 | 37098             | 0.82                 | 5.0E-33                                       | AW264678.1               | EST_HUMAN                     | xq33f11.x1 NCL_CGAP_Lu28 Homo sapiens cDNA clone IMAGE:2762461 3'   |

Page 273 of 550  
Table 4  
Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 12212                  | 26185                 |                   | 1.45                 | 5.0E-33                                       | 11433063                 | NT                            | Homo sapiens ubiquitin protein ligase E3A (human papilloma virus E6-associated protein, Angelman syndrome) (UBE3A), mRNA   |
| 1162                   | 14316                 |                   | 2.25                 | 4.0E-33                                       | AL163207.2               | NT                            | Homo sapiens chromosome 21 segment HS21C007  |
| 2194                   | 15029                 | 28454             | 3.37                 | 4.0E-33                                       | 4768987                  | NT                            | Homo sapiens RAB1, member RAS oncogene family (RAB1), mRNA   |
| 2491                   | 15618                 |                   | 1.16                 | 4.0E-33                                       | AA626621.1               | EST_HUMAN                     | ab51b11.1 Stratagene lung carcinoma 937218 Homo sapiens cDNA clone IMAGE:844317 5' similar to contains Alu repetitive element; contains MER28.b2 MER28 repetitive element; |
| 2810                   | 15734                 | 28860             | 4.78                 | 4.0E-33                                       | AL163210.2               | NT                            | Homo sapiens chromosome 21 segment HS21C010  |
| 4906                   | 17743                 | 30722             | 2.38                 | 4.0E-33                                       | AW283349.1               | EST_HUMAN                     | U1H-B12-shl-c-03-Q-ULs1 NCI CGAP Sub4 Homo sapiens cDNA clone IMAGE:2727149 3'   |
| 5519                   | 18717                 | 31791             | 24.75                | 4.0E-33                                       | AA063053.1               | EST_HUMAN                     | 271a08.1 Stratagene colon (937204) Homo sapiens cDNA clone IMAGE:510038 6' similar to gb:X12671_mart HETEROGENEOUS NUCLEAR RIBONUCLEOPROTEIN A1 (HUMAN);                   |
| 6522                   | 19687                 | 33060             | 0.79                 | 4.0E-33                                       | 8393994                  | NT                            | Homo sapiens polymerase (DNA directed), alpha (POLA), mRNA   |
| 6522                   | 19687                 | 33061             | 0.78                 | 4.0E-33                                       | 8393994                  | NT                            | Homo sapiens polymerase (DNA directed), alpha (POLA), mRNA   |
| 1113                   | 14278                 |                   | 5.62                 | 3.0E-33                                       | BE350127.1               | EST_HUMAN                     | h09g01.x1 NCI CGAP Kid13 Homo sapiens cDNA clone IMAGE:3146256 3' similar to contains MER28.b3 MER29 repetitive element;   |
| 1114                   | 14278                 |                   | 5.83                 | 3.0E-33                                       | BE350127.1               | EST_HUMAN                     | MER29 repetitive element;  |
| 2522                   | 16064                 |                   | 1.16                 | 3.0E-33                                       | AV647851.1               | EST_HUMAN                     | AV647851 GLC Homo sapiens cDNA clone GLCFCF09 3'   |
| 10655                  | 23689                 | 37298             | 0.87                 | 3.0E-33                                       | AA861610.1               | EST_HUMAN                     | ak32b12.s1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:1407647 3' similar to TR-Q13679 Q13579 MARINER TRANSPOSASE;   |
| 18                     | 13256                 |                   | 1.57                 | 2.0E-33                                       | AI160189.1               | EST_HUMAN                     | qb67g03.x1 Soares_fetal_heart_Nb-H18W Homo sapiens cDNA clone IMAGE:1705204 3' similar to contains OFR.H1 OFR repetitive element;  |
| 107                    | 13256                 |                   | 5.53                 | 2.0E-33                                       | AI160189.1               | EST_HUMAN                     | qb67g03.x1 Soares_fetal_heart_Nb-H18W Homo sapiens cDNA clone IMAGE:1705204 3' similar to contains OFR.H1 OFR repetitive element;  |
| 4639                   | 17677                 |                   | 4.53                 | 2.0E-33                                       | BE160039.1               | EST_HUMAN                     | MFR0-HT0405-160300-202-008 HT0405 Homo sapiens cDNA  |
| 5100                   | 18228                 | 31199             | 8.64                 | 2.0E-33                                       | AA626693.1               | EST_HUMAN                     | ab51g11.1 Stratagene lung carcinoma 937218 Homo sapiens cDNA clone IMAGE:844398 5' similar to gb:U00734_cds1 TUBULIN BETA-5 CHAIN (HUMAN);                                 |
| 5204                   | 18325                 | 31294             | 1.6                  | 2.0E-33                                       | 11421332                 | NT                            | Homo sapiens hypothetical protein SIRP-b2 (SIRP-b2), mRNA  |
| 5204                   | 18325                 | 31295             | 1.6                  | 2.0E-33                                       | 11421332                 | NT                            | Homo sapiens hypothetical protein SIRP-b2 (SIRP-b2), mRNA  |
| 6553                   | 19715                 | 33091             | 1.39                 | 2.0E-33                                       | AI27492.1                | EST_HUMAN                     | q08401.x1 Soares_NHIMPu_S1 Homo sapiens cDNA clone IMAGE:1680161 3'  |
| 9301                   | 22377                 |                   | 2.15                 | 2.0E-33                                       | AI052258.1               | EST_HUMAN                     | oz21d03.x1 Soares_fetal_liver spleen_1NFL3_S1 Homo sapiens cDNA clone IMAGE:1675973 3' similar to gb:M29536 TRANSLATIONAL INITIATION FACTOR 2 BETA SUBUNIT (HUMAN);        |
| 9                      | 13247                 |                   | 1.61                 | 1.0E-33                                       | AF003628.1               | NT                            | Homo sapiens X-linked anhidrotic ectodermal dysplasia protein gene (EDA), exon 2 and flanking repeat regions   |
| 7565                   | 20637                 | 34113             | 0.86                 | 1.0E-33                                       | MI13975.1                | NT                            | Homo sapiens protein kinase C beta-II type (PRKCB1) mRNA, complete cds   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO. | Exon<br>SEQ ID<br>NO. | ORF SEQ<br>ID NO. | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 10227                  | 26229                 |                   | 1.4                  | 1.0E-33                                       | U60822.1                 | NT                            | Human dystrophin (DMD) gene, exons 7, 8 and 9, and partial cds  |
| 11602                  | 24655                 | 38340             | 1.56                 | 1.0E-33                                       | AW986818.1               | EST_HUMAN                     | QV3-BN0047-230200-102-003 BN0047 Homo sapiens cDNA  |
| 11962                  | 24647                 | 38662             | 2.44                 | 1.0E-33                                       | U60822.1                 | NT                            | Human dystrophin (DMD) gene, exons 7, 8 and 9, and partial cds  |
| 12768                  | 25511                 |                   | 1.25                 | 1.0E-33                                       | AW904491.1               | EST_HUMAN                     | RC5-NN1055-260400-021-G03 NN1055 Homo sapiens cDNA  |
| 12829                  | 13247                 |                   | 5.7                  | 1.0E-33                                       | AF003528.1               | NT                            | Homo sapiens X-linked arylidic ectodermal dysplasia protein gene (EDA), exon 2 and flanking repeat regions                    |
| 12960                  | 25626                 | 31979             | 2.19                 | 1.0E-33                                       | AV727809.1               | EST_HUMAN                     | AV727809 HTC Homo sapiens cDNA clone HTCNC12 5'   |
| 13179                  | 25766                 |                   | 4.77                 | 9.0E-34                                       | AJ271735.1               | NT                            | Homo sapiens Xq pseudautosomal region; segment 1/2  |
| 2240                   | 16373                 | 28501             | 0.98                 | 8.0E-34                                       | 8822751                  | NT                            | Homo sapiens hypothetical protein FLJ10800 (FLJ10800), mRNA   |
| 4620                   | 17157                 | 30739             | 1.93                 | 8.0E-34                                       | BE062570.1               | EST_HUMAN                     | QV2-BT0258-071298-019-g07 BT0258 Homo sapiens cDNA  |
| 7874                   | 21024                 | 34537             | 0.97                 | 8.0E-34                                       | BE069882.1               | EST_HUMAN                     | MR4-BT0359-200100-001-003 BT0359 Homo sapiens cDNA  |
| 1478                   | 14629                 | 27714             | 2.5                  | 7.0E-34                                       | T70845.1                 | EST_HUMAN                     | Yd1605.1 Scores fetal liver spleen 1NF1S Homo sapiens cDNA clone IMAGE:108320 5'  |
| 10204                  | 14629                 | 27714             | 0.54                 | 7.0E-34                                       | T70845.1                 | EST_HUMAN                     | Yd1605.1 Scores fetal liver spleen 1NF1S Homo sapiens cDNA clone IMAGE:108320 5'  |
| 12482                  | 25334                 |                   | 3.85                 | 7.0E-34                                       | H12886.1                 | EST_HUMAN                     | Y14c10.1 Scores placenta Nb2-IP Homo sapiens cDNA clone IMAGE:148722 5'   |
| 483                    | 13677                 | 28711             | 1.74                 | 6.0E-34                                       | U10691.1                 | NT                            | Human G2 protein mRNA, partial cds  |
| 483                    | 13677                 | 28712             | 1.74                 | 6.0E-34                                       | U10691.1                 | NT                            | Human G2 protein mRNA, partial cds  |
| 5247                   | 18368                 | 31335             | 1.58                 | 6.0E-34                                       | AW988811.1               | EST_HUMAN                     | PM0-BN0065-100300-001-c08 BN0065 Homo sapiens cDNA  |
| 12290                  | 25215                 | 32099             | 2.22                 | 6.0E-34                                       | U03686.1                 | NT                            | Mus musculus DAB/2J hair-specific (hac1-1) gene   |
| 1929                   | 15072                 |                   | 3.15                 | 5.0E-34                                       | 7706300                  | NT                            | Homo sapiens Npw38-binding protein NpwBP (LOC51729), mRNA   |
| 5173                   | 18295                 | 31257             | 5.24                 | 5.0E-34                                       | U30683.1                 | NT                            | Homo sapiens splicing factor SFp55-1 (SRP-55) mRNA, complete cds  |
| 9067                   | 22146                 | 39683             | 1.17                 | 5.0E-34                                       | AF078779.1               | NT                            | Rattus norvegicus putative four repeat ion channel mRNA, complete cds   |
| 10890                  | 23974                 | 37805             | 2.02                 | 5.0E-34                                       | AB037650.1               | NT                            | Homo sapiens mRNA for KIAA1435 protein, partial cds   |
| 11532                  | 24588                 |                   | 1.93                 | 5.0E-34                                       | AL163209.2               | NT                            | Homo sapiens chromosome 21 segment HS21G009   |
| 2054                   | 15195                 | 28309             | 2.09                 | 4.0E-34                                       | AJ804687.1               | EST_HUMAN                     | Homo sapiens splicing factor 3a, subunit 3, 60kD (SF3A3), mRNA  |
| 3241                   | 18415                 | 29430             | 0.9                  | 4.0E-34                                       | 5803168                  | NT                            | Homo sapiens splicing factor 3a, subunit 3, 60kD (SF3A3), mRNA  |
| 5981                   | 18166                 | 32486             | 0.82                 | 4.0E-34                                       | AA881773.1               | EST_HUMAN                     | af355-01.s1 Scores testis NHT Homo sapiens cDNA clone IMAGE:1407836 3'  |
| 9238                   | 22315                 | 35657             | 0.83                 | 4.0E-34                                       | BF208778.1               | EST_HUMAN                     | 601874950F1 NIH_MGC_54 Homo sapiens cDNA clone IMAGE:4102213 5'   |
| 6361                   | 19531                 | 32880             | 0.86                 | 3.0E-34                                       | M37277.1                 | NT                            | Human Ig gamma H-chain D-region genes, partial cds  |
| 11420                  | 24481                 |                   | 2.96                 | 3.0E-34                                       | BF036327.1               | EST_HUMAN                     | 601458531F1 NIH_MGC_98 Homo sapiens cDNA clone IMAGE:3982088 5'   |
| 9152                   | 22230                 | 35774             | 0.75                 | 2.0E-34                                       | AJ678101.1               | EST_HUMAN                     | MER28.12 MER29 repetitive element; w35g06.x1 Scores NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2330170 3' similar to contains |
| 9152                   | 22230                 | 35775             | 0.75                 | 2.0E-34                                       | AJ678101.1               | EST_HUMAN                     | MER28.12 MER29 repetitive element; w35g06.x1 Scores NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2330170 3' similar to contains |
| 11431                  | 24492                 | 38156             | 8.54                 | 2.0E-34                                       | P51805                   | SWISSPROT                     | PLEXIN 4 PRECURSOR (TRANSMEMBRANE PROTEIN SEX)  |

Page 275 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Description   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 11431                  | 24492                 | 38157             | 8.54                 | 2.0E-34                                       | P51805                   | SWISSPROT                     | FLEXIN 4 PRECURSOR (TRANSMEMBRANE PROTEIN SEX)  |
| 1634                   | 14687                 | 27767             | 10.13                | 1.0E-34                                       | P12238                   | SWISSPROT                     | ADP-ATP CARRIER PROTEIN, LIVER ISOFORM T2 (ADP/ATP TRANSLOCASE 3) (ADENINE NUCLEOTIDE TRANSLOCATOR 3) (ANT 3) |
| 1738                   | 14887                 |                   | 7.18                 | 1.0E-34                                       | AU136824.1               | EST_HUMAN                     | AU136824 PLACE1 Homo sapiens cDNA clone PLACE1003383 5'   |
| 3764                   | 18825                 | 28827             | 2.51                 | 1.0E-34                                       | AF003528.1               | NT                            | Homo sapiens X-linked anthrillio ectodermal dysplasia protein gene (EDA), exon 2 and flanking repeat regions  |
| 4181                   | 17331                 | 30323             | 0.79                 | 1.0E-34                                       | AY009397.1               | NT                            | Homo sapiens WNT3 precursor (WNT3) mRNA, complete cds   |
| 4181                   | 17331                 | 30324             | 0.79                 | 1.0E-34                                       | AY009397.1               | NT                            | Homo sapiens WNT3 precursor (WNT3) mRNA, complete cds   |
| 4802                   | 17739                 |                   | 8.28                 | 1.0E-34                                       | BE071414.1               | EST_HUMAN                     | RC2-BT0506-240400-016-h08 BT0506 Homo sapiens cDNA  |
| 6266                   | 19440                 | 32787             | 2.26                 | 1.0E-34                                       | BE874052.1               | EST_HUMAN                     | RC2-BT0506-240400-016-h08 BT0506 Homo sapiens cDNA  |
| 6266                   | 19440                 | 32788             | 2.26                 | 1.0E-34                                       | BE874052.1               | EST_HUMAN                     | RC2-BT0506-240400-016-h08 BT0506 Homo sapiens cDNA  |
| 8527                   | 22592                 | 38163             | 0.84                 | 1.0E-34                                       | P23286                   | SWISSPROT                     | OLFACTORY RECEPTOR-LIKE PROTEIN F5  |
| 9898                   | 22838                 | 38523             | 8.07                 | 1.0E-34                                       | AL036635.1               | EST_HUMAN                     | DKFZp564A1569_r1 584 (synonym: hbr2) Homo sapiens cDNA clone DKFZp564A1569 5'                                 |
| 11469                  | 24518                 | 38186             | 1.51                 | 1.0E-34                                       | BE781790.1               | EST_HUMAN                     | 601470562F1 NIH_MGC_67 Homo sapiens cDNA clone IMAGE:3873478 5'   |
| 11469                  | 24518                 | 38187             | 1.51                 | 1.0E-34                                       | BE781790.1               | EST_HUMAN                     | 601470562F1 NIH_MGC_67 Homo sapiens cDNA clone IMAGE:3873478 5'   |
| 11473                  | 24532                 | 38202             | 2.92                 | 1.0E-34                                       | 11436599                 | NT                            | Homo sapiens nucleobindin 2 (NUCB2), mRNA   |
| 12680                  | 26125                 |                   | 2.44                 | 1.0E-34                                       | AA807097.1               | EST_HUMAN                     | cc31c11.at NCI CGAP GCB1 Homo sapiens cDNA clone IMAGE:1351316 3' similar to gb:U68203                        |
| 12680                  | 26680                 |                   | 5.84                 | 1.0E-34                                       | AL163210.2               | NT                            | TYROSINE-PROTEIN KINASE RECEPTOR FLT4 PRECURSOR (HUMAN);  |
| 3735                   | 16898                 | 28900             | 1.3                  | 9.0E-35                                       | AW663302.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C010   |
| 232                    | 13453                 |                   | 7.21                 | 8.0E-35                                       | 6031190                  | NT                            | H177606.Y1 NCI CGAP_GU1 Homo sapiens cDNA clone IMAGE:2868787 5'  |
| 1776                   | 14925                 | 28019             | 3.63                 | 8.0E-35                                       | BF589837.1               | EST_HUMAN                     | Homo sapiens prohibitin (PHB) mRNA  |
| 1776                   | 14925                 | 28020             | 3.63                 | 8.0E-35                                       | BF589837.1               | EST_HUMAN                     | ncs3a08.x1 NCI CGAP_Kid11 Homo sapiens cDNA clone IMAGE:3258134 3' similar to TR:O75912                       |
| 4889                   | 18118                 | 31087             | 2.61                 | 8.0E-35                                       | BF183195.1               | EST_HUMAN                     | ncs3a08.x1 NCI CGAP_Kid11 Homo sapiens cDNA clone IMAGE:3258134 3' similar to TR:O75912                       |
| 10828                  | 24011                 | 37945             | 1.53                 | 8.0E-35                                       | BE378480.1               | EST_HUMAN                     | ncs3a08.x1 NCI CGAP_Kid11 Homo sapiens cDNA clone IMAGE:3258134 3' similar to TR:O75912                       |
| 12404                  | 25283                 |                   | 5.89                 | 8.0E-35                                       | BF589837.1               | EST_HUMAN                     | ncs3a08.x1 NCI CGAP_Kid11 Homo sapiens cDNA clone IMAGE:3258134 3' similar to TR:O75912                       |
| 6613                   | 19773                 | 33184             | 1.51                 | 7.0E-35                                       | 11425417                 | NT                            | ncs3a08.x1 NCI CGAP_Kid11 Homo sapiens cDNA clone IMAGE:3258134 3' similar to TR:O75912                       |
| 1445                   | 14598                 | 27875             | 1.08                 | 6.0E-35                                       | AA757115.1               | EST_HUMAN                     | ncs3a08.x1 NCI CGAP_Kid11 Homo sapiens cDNA clone IMAGE:3258134 3' similar to TR:O75912                       |
| 2025                   | 15168                 | 28271             | 4.63                 | 6.0E-35                                       | 6005975                  | NT                            | ncs3a08.x1 NCI CGAP_Kid11 Homo sapiens cDNA clone IMAGE:3258134 3' similar to TR:O75912                       |
| 4184                   | 17314                 | 30308             | 0.8                  | 6.0E-35                                       | AW297181.1               | EST_HUMAN                     | ncs3a08.x1 NCI CGAP_Kid11 Homo sapiens cDNA clone IMAGE:3258134 3' similar to TR:O75912                       |
| 8081                   | 21163                 | 34880             | 4.03                 | 6.0E-35                                       | 6005921                  | NT                            | ncs3a08.x1 NCI CGAP_Kid11 Homo sapiens cDNA clone IMAGE:3258134 3' similar to TR:O75912                       |
| 8906                   | 21885                 | 35524             | 0.57                 | 6.0E-35                                       | X94232.1                 | NT                            | ncs3a08.x1 NCI CGAP_Kid11 Homo sapiens cDNA clone IMAGE:3258134 3' similar to TR:O75912                       |

Page 276 of 550  
Table 4  
Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 8806                   | 21985                 | 35525             | 0.57                 | 8.0E-35                                       | X94232.1                 | NT                            | H.sapiens mRNA for novel T-cell activation protein  |
| 9867                   | 22307                 | 38492             | 0.61                 | 8.0E-35                                       | AB002394.1               | NT                            | Human mRNA for KIA03688 gene, partial cds   |
| 10107                  | 23145                 | 36743             | 2.97                 | 6.0E-35                                       | AB007798.1               | NT                            | Human sapiens mRNA for KIAA1365 protein, partial cds  |
| 148                    | 13373                 | 28408             | 0.61                 | 5.0E-35                                       | AF164830.1               | NT                            | Human sapiens carboxyl phosphatase synthetase 1 mRNA, complete cds  |
| 1746                   | 14895                 | 27869             | 2.25                 | 5.0E-35                                       | X65382.1                 | NT                            | H.sapiens immunoglobulin kappa light chain variable region L14  |
| 2844                   | 16558                 | 28067             | 0.99                 | 5.0E-35                                       | AB007868.2               | NT                            | Human sapiens mRNA for KIAA0406 protein, partial cds  |
| 3074                   | 16250                 | 28271             | 2.87                 | 5.0E-35                                       | 6812639                  | NT                            | Human sapiens Ring1 and YY1 binding protein (RYBP), mRNA  |
| 4529                   | 17667                 | 30653             | 1.72                 | 5.0E-35                                       | AF023288.1               | NT                            | Human sapiens cdc2 kinase (CLK2), protein1, cdc21, glucocorticoidase (GBA), and melanin genes, complete cds; melanin pseudogene and glucocorticoidase pseudogenes and thrombospondin3 (THBS3) gene, partial cds |
| 8376                   | 21459                 |                   | 4.25                 | 5.0E-35                                       | BE890992.1               | EST_HUMAN                     | 601431084F1 NIH_MGC_72 Homo sapiens cDNA clone IMAGE:3917229 5'   |
| 8405                   | 21488                 | 35015             | 2.17                 | 5.0E-35                                       | AI208765.1               | EST_HUMAN                     | q336-05.x1 Soares_testis NIH Homo sapiens cDNA clone IMAGE:1837448 3' similar to SW:Y249_HUMAN Q82539 HYPOTHETICAL PROTEIN KIAA0249. ;  |
| 8405                   | 21488                 | 35016             | 2.17                 | 5.0E-35                                       | AI208765.1               | EST_HUMAN                     | q336-05.x1 Soares_testis NIH Homo sapiens cDNA clone IMAGE:1837448 3' similar to SW:Y249_HUMAN Q82539 HYPOTHETICAL PROTEIN KIAA0249. ;  |
| 11451                  | 24511                 |                   | 2.54                 | 5.0E-35                                       | AA001786.1               | EST_HUMAN                     | 2H84F12.L1 Soares_fetal_liver_spleen INFLS_S1 Homo sapiens cDNA clone IMAGE:428015 5'   |
| 1465                   | 14619                 | 27703             | 20.46                | 4.0E-36                                       | BE257607.1               | EST_HUMAN                     | 601109719F1 NIH_MGC_16 Homo sapiens cDNA clone IMAGE:3350405 5'   |
| 1882                   | 15008                 | 28114             | 11.21                | 4.0E-35                                       | H01193.1                 | EST_HUMAN                     | y188a07.r1 Soares_fetal_liver_spleen INFLS Homo sapiens cDNA clone IMAGE:241236 5' similar to contains PTR5 repetitive element ;  |
| 7358                   | 20437                 |                   | 1.67                 | 4.0E-35                                       | BE350127.1               | EST_HUMAN                     | h09g01.x1 NCI_OGAP_Kid13 Homo sapiens cDNA clone IMAGE:3146256 3' similar to contains MER29.B3 MER29 repetitive element ;   |
| 8715                   | 21785                 | 35332             | 8.05                 | 4.0E-35                                       | AL046593.1               | EST_HUMAN                     | DKFZp434L148_r1 434 (synonym: hies3) Homo sapiens cDNA clone DKFZp434L148 5'  |
| 12098                  | 25078                 | 38786             | 2.5                  | 4.0E-35                                       | AF114150.1               | NT                            | Homo sapiens Y-linked zinc finger protein (ZFY) gene, complete cds  |
| 1610                   | 14763                 | 27843             | 93.92                | 3.0E-35                                       | BE288182.1               | EST_HUMAN                     | 601125260F1 NIH_MGC_8 Homo sapiens cDNA clone IMAGE:3345063 5'  |
| 2408                   | 15539                 |                   | 2.64                 | 3.0E-35                                       | AF224492.1               | NT                            | Homo sapiens phospholipid scramblase 1 gene, complete cds   |
| 5456                   | 18656                 | 31634             | 23.43                | 3.0E-35                                       | BF433100.1               | EST_HUMAN                     | 7r25a09.x1 NCI_OGAP_Lu24 Homo sapiens cDNA clone IMAGE:3566381 3' similar to TR:Q9QZH7  |
| 5458                   | 18656                 | 31635             | 23.43                | 3.0E-35                                       | BF433100.1               | EST_HUMAN                     | Q9QZH7 F-BOX PROTEIN FBL2. ;  |
| 9889                   | 22738                 |                   | 1.45                 | 3.0E-35                                       | AF223391.1               | NT                            | Homo sapiens calcium channel alpha1E subunit (CACNA1E) gene, exons 7-49, and partial cds, alternatively spliced   |
| 10378                  | 23413                 | 37022             | 1.5                  | 3.0E-35                                       | AW003083.1               | EST_HUMAN                     | vr03a05.x1 NCI_OGAP_GC8 Homo sapiens cDNA clone IMAGE:2480482 3' similar to SW:POL1_HUMAN P10266 RETROVIRUS-RELATED POL. POLYPROTEIN [CONTAINS: REVERSE TRANSCRIPTASE. ;  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top)<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 111                    | 16005                 | 26372             | 1.25                 | 2.0E-35                                   | N88065.1                 | EST_HUMAN                     | K6832F Human fetal heart, Lambda ZAP Express Homo sapiens cDNA clone K6832 5' similar to REPEATITIVE ELEMENT  |
| 1215                   | 14370                 | 27436             | 1.89                 | 2.0E-35                                   | T11903.1                 | EST_HUMAN                     | A971F Heart Homo sapiens cDNA clone A971  |
| 2262                   | 15424                 | 28558             | 4.56                 | 2.0E-35                                   | AB018413.1               | NT                            | Homo sapiens mRNA for Gab2, complete cds  |
| 2748                   | 16865                 | 28976             | 1.13                 | 2.0E-35                                   | AW665005.1               | EST_HUMAN                     | h88a12.x1 Scores_NFL_T_GBC S1 Homo sapiens cDNA clone IMAGE:2878166 3' similar to SW:TR12 HUMAN Q14669 THYROID RECEPTOR INTERACTING PROTEIN 12;       |
| 3388                   | 16556                 | 28670             | 1.08                 | 2.0E-35                                   | 6912459                  | NT                            | Homo sapiens Grb2-associated binder 2 (KIAA0571), mRNA  |
| 3386                   | 16556                 | 28671             | 1.08                 | 2.0E-35                                   | 6912459                  | NT                            | Homo sapiens Grb2-associated binder 2 (KIAA0571), mRNA  |
| 3847                   | 16810                 |                   | 0.77                 | 2.0E-35                                   | AB020702.1               | NT                            | Homo sapiens mRNA for KIAA0885 protein, partial cds   |
| 4019                   | 17176                 | 30184             | 0.85                 | 2.0E-35                                   | BE247575.1               | EST_HUMAN                     | TCBAP2E4328 Pediatric pre-B cell acute lymphoblastic leukemia Baylor-HGSC project=TCBA Homo sapiens cDNA clone TCBAP4328                              |
| 4019                   | 17176                 | 30185             | 0.85                 | 2.0E-35                                   | BE247575.1               | EST_HUMAN                     | TCBAP2E4328 Pediatric pre-B cell acute lymphoblastic leukemia Baylor-HGSC project=TCBA Homo sapiens cDNA clone TCBAP4328                              |
| 4792                   | 17827                 |                   | 3.01                 | 2.0E-35                                   | H48239.1                 | EST_HUMAN                     | V19a12.11 Scores fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:274079 5'   |
| 5700                   | 18804                 | 32186             | 1.83                 | 2.0E-35                                   | BF332417.1               | EST_HUMAN                     | QV0-BT0701-210400-189-B04 BT0701 Homo sapiens cDNA  |
| 7263                   | 20336                 | 33785             | 0.8                  | 2.0E-35                                   | BE832636.1               | EST_HUMAN                     | GM2-MT0125-280700-297-G02 MT0125 Homo sapiens cDNA  |
| 7253                   | 20336                 | 33786             | 0.8                  | 2.0E-35                                   | BE832636.1               | EST_HUMAN                     | GM2-MT0125-280700-297-G02 MT0125 Homo sapiens cDNA  |
| 11036                  | 24115                 | 37749             | 2.93                 | 2.0E-35                                   | X69417.1                 | NT                            | H. sapiens PROS-27 mRNA   |
| 12157                  | 16556                 | 28570             | 1.22                 | 2.0E-35                                   | 6912459                  | NT                            | Homo sapiens Grb2-associated binder 2 (KIAA0571), mRNA  |
| 12157                  | 16556                 | 28571             | 1.22                 | 2.0E-35                                   | 6912459                  | NT                            | Homo sapiens Grb2-associated binder 2 (KIAA0571), mRNA  |
| 12342                  | 26247                 | 32111             | 1.33                 | 2.0E-35                                   | BE904978.1               | EST_HUMAN                     | 601469774F1 NIH_MGC_70 Homo sapiens cDNA clone IMAGE:3898699 5'   |
| 12342                  | 26247                 | 32112             | 1.33                 | 2.0E-35                                   | BE904978.1               | EST_HUMAN                     | 601469774F1 NIH_MGC_70 Homo sapiens cDNA clone IMAGE:3898699 5'   |
| 12831                  | 25614                 |                   | 7.22                 | 2.0E-35                                   | AL163210.2               | NT                            | Homo sapiens chromosome 21 segment HS21C010   |
| 13056                  | 16005                 | 26372             | 1.74                 | 2.0E-35                                   | N88065.1                 | EST_HUMAN                     | K6832F Human fetal heart, Lambda ZAP Express Homo sapiens cDNA clone K6832 5' similar to REPEATITIVE ELEMENT  |
| 47                     | 13286                 | 26285             | 5.78                 | 1.0E-36                                   | AA631049.1               | EST_HUMAN                     | fric16 Regional genomic DNA specific cDNA library Homo sapiens cDNA clone CR12-1  |
| 47                     | 13286                 | 26296             | 5.76                 | 1.0E-35                                   | AA631049.1               | EST_HUMAN                     | fric16 Regional genomic DNA specific cDNA library Homo sapiens cDNA clone CR12-1  |
| 771                    | 13952                 | 27000             | 35.82                | 1.0E-35                                   | AW389473.1               | EST_HUMAN                     | IL2-ST0162-131099-006-412 ST0162 Homo sapiens cDNA  |
| 771                    | 13952                 | 27001             | 35.82                | 1.0E-36                                   | AW389473.1               | EST_HUMAN                     | IL2-ST0162-131099-006-412 ST0162 Homo sapiens cDNA  |
| 932                    | 14107                 |                   | 1.28                 | 1.0E-35                                   | T87947.1                 | EST_HUMAN                     | yd83a01.1 Scores fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:115752 5' similar to SP-A44282 A44282 RETROVIRUS-RELATED POLYPROTEIN - HUMAN; |
| 2607                   | 15730                 | 28847             | 1.89                 | 1.0E-35                                   | 7705994                  | NT                            | Homo sapiens hypothetical protein (LOC51233), mRNA  |
| 2628                   | 15940                 | 28050             | 1.34                 | 1.0E-35                                   | BE350127.1               | EST_HUMAN                     | h109g01.x1 NCI_CGAP_Kid13 Homo sapiens cDNA clone IMAGE:3146258 3' similar to contains MER28.b3 MER28 repetitive element;                             |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 2828                   | 15040                 | 23051             | 1.34                 | 1.0E-35                                       | BE350127.1               | EST_HUMAN                     | h106g01.x1 NCI_CGAP_K6413 Homo sapiens cDNA clone IMAGE:3148286 3' similar to contains MER29.b3        |
| 3212                   | 16388                 | 28397             | 1.87                 | 1.0E-35                                       | 6006030                  | NT                            | MER29 repetitive element;  |
| 3232                   | 16403                 | 28418             | 1.87                 | 1.0E-35                                       | AV650422.1               | EST_HUMAN                     | Homo sapiens transcription elongation factor B (SIII), polypeptide 1-like (TCOE1L) mRNA                |
| 3232                   | 16403                 | 28418             | 1.87                 | 1.0E-35                                       | AV650422.1               | EST_HUMAN                     | AV650422 GLC Homo sapiens cDNA clone GLOCEFO8 3'   |
| 4542                   | 17680                 | 30661             | 4.82                 | 1.0E-35                                       | 7658005                  | NT                            | AV650422 GLC Homo sapiens cDNA clone GLOCEFO8 3'   |
| 4542                   | 17680                 | 30662             | 4.82                 | 1.0E-35                                       | 7658005                  | NT                            | Mus musculus actin receptor interacting protein 1 (Arip1-pending), mRNA                                |
| 5627                   | 18821                 | 31896             | 1.48                 | 1.0E-35                                       | 11528236                 | NT                            | Mus musculus actin receptor interacting protein 1 (Arip1-pending), mRNA                                |
| 7135                   | 18561                 | 31475             | 0.74                 | 1.0E-35                                       | AW608665.1               | EST_HUMAN                     | Homo sapiens chromatin assembly factor 1, subunit B (p60) (CHAF1B), mRNA                               |
| 7135                   | 18561                 | 31475             | 0.74                 | 1.0E-35                                       | AW608665.1               | EST_HUMAN                     | Homo sapiens cDNA  |
| 7652                   | 20720                 | 34198             | 0.99                 | 1.0E-35                                       | AB033105.1               | NT                            | MR1-ST0111-111193-011-407 ST0111 Homo sapiens cDNA   |
| 7819                   | 20874                 | 34373             | 0.91                 | 1.0E-35                                       | 11418002                 | NT                            | MR1-ST0111-111193-011-407 ST0111 Homo sapiens cDNA   |
| 9742                   | 26861                 | 36383             | 2.46                 | 1.0E-35                                       | AL158595.1               | EST_HUMAN                     | Homo sapiens mRNA for KIAA1279 protein, partial cds  |
| 9742                   | 25861                 | 36394             | 2.46                 | 1.0E-35                                       | AL158595.1               | EST_HUMAN                     | Homo sapiens KIAA0846 gene product (KIAA0846), mRNA  |
| 10805                  | 23838                 | 37482             | 0.72                 | 1.0E-35                                       | BF589594.1               | EST_HUMAN                     | AU158595 PLACES Homo sapiens cDNA clone PLACES3000382 3'   |
| 10805                  | 23838                 | 37483             | 0.72                 | 1.0E-35                                       | BF589594.1               | EST_HUMAN                     | hna06d08.x1 NCI_CGAP_P128 Homo sapiens cDNA clone IMAGE:3254051 3' similar to TR-O31341                |
| 12055                  | 25036                 | 38743             | 1.49                 | 1.0E-35                                       | AB028980.1               | NT                            | O31341 BETA-GALACTOSIDASE ;  |
| 12055                  | 25036                 | 38744             | 1.49                 | 1.0E-35                                       | AB028980.1               | NT                            | O31341 BETA-GALACTOSIDASE ;  |
| 12062                  | 25043                 |                   | 2.04                 | 1.0E-35                                       | AI625119.1               | EST_HUMAN                     | Homo sapiens mRNA for KIAA1057 protein, partial cds  |
| 12188                  | 26077                 |                   | 6.35                 | 1.0E-35                                       | 11418274                 | NT                            | Homo sapiens mRNA for KIAA1057 protein, partial cds  |
| 12405                  | 25284                 |                   | 1.26                 | 1.0E-35                                       | 11418110                 | NT                            | premta-7.D01.r b1 tumor Homo sapiens cDNA 5'   |
| 12808                  | 26539                 |                   | 2.49                 | 1.0E-35                                       | BE782832.1               | EST_HUMAN                     | Homo sapiens fibulin 1 (FBLN1), mRNA   |
| 6131                   | 18310                 | 32850             | 0.67                 | 8.0E-36                                       | X78479.1                 | NT                            | Homo sapiens casein kinase 1, epsilon (CSNK1E), mRNA   |
| 9430                   | 22804                 | 36070             | 0.76                 | 8.0E-36                                       | AA348480.1               | EST_HUMAN                     | 601584833FT NIH_MGC 7 Homo sapiens cDNA clone IMAGE:3638885 5'   |
| 2897                   | 16173                 | 25182             | 1.53                 | 7.0E-36                                       | AW657578.1               | EST_HUMAN                     | B. bovis BBSc mRNA for schlerin  |
| 3188                   | 16363                 |                   | 5.25                 | 7.0E-36                                       | 4957468                  | NT                            | EST54838 Hippocampus II Homo sapiens cDNA 5' and similar to similar to endogenous retrovirus 9, 5' LTR |
| 6273                   | 18392                 | 31360             | 1.09                 | 7.0E-36                                       | Q27409                   | SWISSPROT                     | CM1-CT0315-091288-083-d07 CT0315 Homo sapiens cDNA   |
| 5273                   | 18392                 | 31361             | 1.09                 | 7.0E-36                                       | Q27409                   | SWISSPROT                     | Homo sapiens C-terminal binding protein 2 (CTBP2) mRNA   |
| 7832                   | 20887                 | 34389             | 6.31                 | 7.0E-36                                       | U06872.1                 | NT                            | ADHESIVE PLAQUE MATRIX PROTEIN PRECURSOR (FOOT PROTEIN 1) (MGFP1) (MGFP-1)                             |
| 7832                   | 20887                 | 34390             | 6.31                 | 7.0E-36                                       | U06872.1                 | NT                            | ADHESIVE PLAQUE MATRIX PROTEIN PRECURSOR (FOOT PROTEIN 1) (MGFP1) (MGFP-1)                             |
| 12570                  | 25388                 | 32040             | 27.38                | 7.0E-36                                       | AF052051.1               | NT                            | Human carcinoembryonic antigen gene family member 12 (CEM12) gene, exons L and LN                      |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO. | Exon<br>SEQ ID<br>NO. | ORF SEQ<br>ID NO. | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 2060                   | 16201                 | 28315             | 1.92                 | 6.0E-36                                       | 7708822                  | NT                            | Homo sapiens ngn1n2 2 (NINL2), mRNA  |
| 2490                   | 15617                 |                   | 5.59                 | 6.0E-36                                       | AB035346.1               | NT                            | Homo sapiens TGLB gene, exon 12  |
| 3729                   | 16890                 | 29894             | 0.59                 | 6.0E-36                                       | BF515101.1               | EST_HUMAN                     | UHL-BW1-ant-c-12-UJI.s1 NCL_CGAP_Sub7 Homo sapiens cDNA clone IMAGE:3083542 3'   |
| 6446                   | 18846                 | 31624             | 7.17                 | 6.0E-36                                       | AI435160.1               | EST_HUMAN                     | HS3000.x1 Soares_NSF_F8_9W_OT_PA.P_91 Homo sapiens cDNA clone IMAGE:2128195 3' similar to<br>90xM11849 PANCREATIC SECRETORY TRYPSIN INHIBITOR PRECURSOR (HUMAN); |
| 7258                   | 20341                 | 33782             | 3.03                 | 6.0E-36                                       | AW780143.1               | EST_HUMAN                     | hs06802.x1 NCL_CGAP_Co14 Homo sapiens cDNA clone IMAGE:3036627 3' similar to SW:IMA2_HUMAN<br>P52292 IMPORTIN ALPHA-2 SUBUNIT;                                   |
| 8863                   | 21932                 | 36471             | 4.62                 | 6.0E-36                                       | AF208161.1               | NT                            | Homo sapiens synectin precursor, mRNA, complete cds  |
| 10490                  | 23465                 |                   | 0.63                 | 6.0E-36                                       | C16927.1                 | EST_HUMAN                     | C16927 Clontech human aorta polyA+ mRNA (#6572) Homo sapiens cDNA clone GEN:535C11 5'  |
| 11841                  | 24830                 | 38521             | 3.49                 | 6.0E-36                                       | AI380499.1               | EST_HUMAN                     | HS3000.x1 NCL_CGAP_GLL1 Homo sapiens cDNA clone IMAGE:2107024 3' similar to contains MER9.b2<br>MER9 repetitive element;   |
| 140                    | 13966                 | 28399             | 15.16                | 6.0E-36                                       | AL271735.1               | NT                            | Homo sapiens Xq pseudautosomal region; segment 1/2   |
| 2809                   | 18923                 | 29033             | 21.08                | 5.0E-36                                       | BE388496.1               | EST_HUMAN                     | 601285567F1 NIH_MGC_44 Homo sapiens cDNA clone IMAGE:3607289 5'  |
| 3700                   | 18861                 | 29863             | 3.24                 | 5.0E-36                                       | AL163209.2               | NT                            | Homo sapiens chrXosome 21 segment HS21C009   |
| 4909                   | 18039                 | 31028             | 1.31                 | 5.0E-36                                       | 5729729                  | NT                            | Homo sapiens API5-like 1 (API5L1), mRNA  |
| 4909                   | 18039                 | 31028             | 1.31                 | 5.0E-36                                       | 5729729                  | NT                            | Homo sapiens API5-like 1 (API5L1), mRNA  |
| 7866                   | 21016                 | 34528             | 0.59                 | 6.0E-36                                       | 11078227                 | NT                            | Homo sapiens N-ethylmaleimide-sensitive factor (NSF), mRNA   |
| 12155                  | 13368                 | 28389             | 6.11                 | 5.0E-36                                       | AL271735.1               | NT                            | Homo sapiens Xq pseudautosomal region; segment 1/2   |
| 12458                  | 26322                 | 32085             | 2.36                 | 5.0E-36                                       | 11417882                 | NT                            | Homo sapiens calcineurin binding protein 1 (KIAA0330), mRNA  |
| 1252                   | 14411                 | 27473             | 1.57                 | 4.0E-36                                       | BE010038.1               | EST_HUMAN                     | PM8-BN0178-100400-001-g04 BN0178 Homo sapiens cDNA   |
| 1677                   | 14829                 | 27613             | 1.36                 | 4.0E-36                                       | BE382574.1               | EST_HUMAN                     | 601286574F1 NIH_MGC_19 Homo sapiens cDNA clone IMAGE:3628386 5'  |
| 2297                   | 15428                 |                   | 4.14                 | 4.0E-36                                       | AW247772.1               | EST_HUMAN                     | 2820020.Sprtime NIH_MGC_7 Homo sapiens cDNA clone IMAGE:2820020 5'   |
| 3435                   | 16603                 | 29622             | 1.1                  | 4.0E-36                                       | BE386289.1               | EST_HUMAN                     | 601282266F1 NIH_MGC_44 Homo sapiens cDNA clone IMAGE:3604168 5'  |
| 3435                   | 16603                 | 29623             | 1.1                  | 4.0E-36                                       | BE386289.1               | EST_HUMAN                     | 601282266F1 NIH_MGC_44 Homo sapiens cDNA clone IMAGE:3604168 5'  |
| 4877                   | 18008                 | 30962             | 0.69                 | 4.0E-36                                       | AL163204.2               | NT                            | Homo sapiens chrXosome 21 segment HS21C004   |
| 5833                   | 18024                 |                   | 0.66                 | 4.0E-36                                       | RG4023.1                 | EST_HUMAN                     | Y19105.1 Scores placenta Nkx2-IP Homo sapiens cDNA clone IMAGE:139713 5'   |
| 6180                   | 18066                 | 32704             | 2.49                 | 4.0E-36                                       | 11497041                 | NT                            | Homo sapiens a disintegrin and metalloproteinase domain 22 (ADAM22), transcript variant 3, mRNA  |
| 7831                   | 20888                 | 34398             | 1.78                 | 4.0E-36                                       | M33320.1                 | NT                            | Human platelet Glycoprotein IIb (GP1Ib) gene, exons 2-29   |
| 8762                   | 21831                 | 35369             | 1.45                 | 4.0E-36                                       | D87676.1                 | NT                            | Homo sapiens DNA for amyloid precursor protein, complete cds   |
| 8762                   | 21831                 | 35370             | 1.45                 | 4.0E-36                                       | D87676.1                 | NT                            | Homo sapiens DNA for amyloid precursor protein, complete cds   |
| 11235                  | 24304                 | 37941             | 3.13                 | 4.0E-36                                       | AA400370.1               | EST_HUMAN                     | zu68c10.1 Scores_testis_NHT Homo sapiens cDNA clone IMAGE:743250 5'  |
| 12476                  | 25928                 |                   | 1.91                 | 4.0E-36                                       | 11420518                 | NT                            | Homo sapiens nuclear factor of activated T-cells, cytoplasmic 2 (NFATC2), mRNA   |
| 12520                  | 25961                 |                   | 4.27                 | 4.0E-36                                       | AV763628.1               | EST_HUMAN                     | AV763628 TP Homo sapiens cDNA clone TPGBH01 5'   |
| 714                    | 13898                 | 28934             | 2.83                 | 3.0E-36                                       | AF069810.1               | NT                            | Homo sapiens neurodin III-alpha gene, partial cds  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 2373                   | 15504                 | 28630             | 1.19                 | 3.0E-36                                       | 7682401                  | NT                            | Homo sapiens KIAA0952 protein (KIAA0952), mRNA   |
| 4624                   | 17761                 | 30743             | 7.5                  | 3.0E-36                                       | 10181139                 | NT                            | Mus musculus junctophilin 1 (Jpl-pending), mRNA  |
| 11368                  | 24429                 | 38088             | 1.84                 | 3.0E-36                                       | BF035327.1               | EST_HUMAN                     | 601458531F1 NIH_MGC_68 Homo sapiens cDNA clone IMAGE:3862086 5'  |
| 3238                   | 16412                 | 29427             | 2.5                  | 2.0E-36                                       | BE259287.1               | EST_HUMAN                     | 601106343F1 NIH_MGC_16 Homo sapiens cDNA clone IMAGE:3342708 5'  |
| 5074                   | 18202                 | 31174             | 10.78                | 2.0E-36                                       | AW980378.1               | EST_HUMAN                     | QV0-OT0030-240300-174-M4 OT0030 Homo sapiens cDNA  |
| 5603                   | 18798                 | 31848             | 2.68                 | 2.0E-36                                       | AF287747.1               | NT                            | Mus musculus p47-phox gene, complete cds   |
| 5970                   | 19156                 | 32471             | 3.75                 | 2.0E-36                                       | T08756.1                 | EST_HUMAN                     | EST06648 Infant Brain, Bonto Scores Homo sapiens cDNA clone HIBB128 5' end   |
| 6706                   | 19884                 | 33254             | 13.94                | 2.0E-36                                       | T68629.1                 | EST_HUMAN                     | yc44407.1 Stratagene liver (4837224) Homo sapiens cDNA clone IMAGE:83508 5'  |
| 9688                   | 22643                 | 36212             | 0.94                 | 2.0E-36                                       | BF512794.1               | EST_HUMAN                     | UJ-H-BW1-emu-e-11-0-UJ.e1 NCI_CGAP_Sub7 Homo sapiens cDNA clone IMAGE:3071132 3'   |
| 9749                   | 22687                 | 36258             | 0.74                 | 2.0E-36                                       | 4607848                  | NT                            | Homo sapiens ubiquitin specific protease 13 (isopeptidase T-3) (USP13) mRNA  |
| 9749                   | 22687                 | 36259             | 0.74                 | 2.0E-36                                       | 4607848                  | NT                            | Homo sapiens ubiquitin specific protease 13 (isopeptidase T-3) (USP13) mRNA  |
| 908                    | 14083                 | 27148             | 1.74                 | 1.0E-36                                       | BE409310.1               | EST_HUMAN                     | 601300838F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3635480 5'  |
| 2212                   | 15346                 | 28474             | 1.71                 | 1.0E-36                                       | BE148523.1               | EST_HUMAN                     | RC1-H-T0217-131199-021-H07 HT0217 Homo sapiens cDNA  |
| 2212                   | 15346                 | 28476             | 1.71                 | 1.0E-36                                       | BE148523.1               | EST_HUMAN                     | RC1-H-T0217-131199-021-H07 HT0217 Homo sapiens cDNA  |
| 2275                   | 15408                 | 28538             | 1.83                 | 1.0E-36                                       | BF079761.1               | EST_HUMAN                     | 602198493F1 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:4272886 5'  |
| 3425                   | 16594                 | 32344             | 3.33                 | 1.0E-36                                       | AF156962.1               | NT                            | Homo sapiens human endogenous retrovirus W proC8-19 protease (pro) gene, partial cds   |
| 5847                   | 19037                 | 32344             | 0.64                 | 1.0E-36                                       | AL044446.1               | EST_HUMAN                     | DKFZp434G022.1 434 (synonym: hta33) Homo sapiens cDNA clone DKFZp434G022 5'  |
| 6020                   | 19203                 | 32523             | 1.23                 | 1.0E-36                                       | 4827064                  | NT                            | Homo sapiens zinc finger protein 147 (estrogen-responsive finger protein) (ZNF147) mRNA  |
| 6312                   | 19484                 |                   | 4.27                 | 1.0E-36                                       | AB67714.1                | EST_HUMAN                     | vb37c12.x1 NCI_CGAP_GC08 Homo sapiens cDNA clone IMAGE:2307862 3' similar to contains Alu repetitive element                                   |
| 6519                   | 19884                 | 33055             | 1.9                  | 1.0E-36                                       | R25012.1                 | EST_HUMAN                     | yg38g10.1 Scores Infant brain 1NIB Homo sapiens cDNA clone IMAGE:34529 5' similar to SP:CAHP_HUMAN P35219 CARBONIC ANHYDRASE-RELATED PROTEIN ; |
| 6519                   | 19884                 | 33056             | 1.9                  | 1.0E-36                                       | R25012.1                 | EST_HUMAN                     | yg38g10.1 Scores Infant brain 1NIB Homo sapiens cDNA clone IMAGE:34529 5' similar to SP:CAHP_HUMAN P35219 CARBONIC ANHYDRASE-RELATED PROTEIN ; |
| 6820                   | 19873                 | 33361             | 0.72                 | 1.0E-36                                       | AL120542.1               | EST_HUMAN                     | DKFZp761A229.1 761 (synonym: hamy2) Homo sapiens cDNA clone DKFZp761A229 5'  |
| 8147                   | 21228                 | 34747             | 4.06                 | 1.0E-36                                       | AA148034.1               | EST_HUMAN                     | z051a12.1 Stratagene endothelial cell 837223 Homo sapiens cDNA clone IMAGE:590398 5'   |
| 8147                   | 21229                 | 34748             | 4.06                 | 1.0E-36                                       | AA148034.1               | EST_HUMAN                     | z051a12.1 Stratagene endothelial cell 837223 Homo sapiens cDNA clone IMAGE:590398 5'   |
| 8243                   | 21325                 | 34841             | 0.78                 | 1.0E-36                                       | AA420467.1               | EST_HUMAN                     | nc60a08.1 NCI_CGAP_P1 Homo sapiens cDNA clone IMAGE:745670   |
| 8243                   | 21325                 | 34842             | 0.76                 | 1.0E-36                                       | AA420467.1               | EST_HUMAN                     | nc60a08.1 NCI_CGAP_P1 Homo sapiens cDNA clone IMAGE:745670   |
| 8373                   | 21454                 | 34977             | 0.68                 | 1.0E-36                                       | AL141688.1               | EST_HUMAN                     | AU141688 THYRO1 Homo sapiens cDNA clone IMAGE:745670   |
| 8373                   | 21454                 | 34978             | 0.68                 | 1.0E-36                                       | AL141688.1               | EST_HUMAN                     | AU141688 THYRO1 Homo sapiens cDNA clone THYRO1001033 5'  |
| 9229                   | 22307                 | 35850             | 3.33                 | 1.0E-36                                       | AW103688.1               | EST_HUMAN                     | xe82b07.x1 NCI_CGAP_Bm35 Homo sapiens cDNA clone IMAGE:2614357 3'  |
| 10320                  | 23355                 | 36984             | 3.83                 | 1.0E-36                                       | BF384189.1               | EST_HUMAN                     | QV9-NN1023-010600-189-h01 NN1023 Homo sapiens cDNA   |
| 10534                  | 23569                 | 37176             | 0.64                 | 1.0E-36                                       | AW855888.1               | EST_HUMAN                     | RC3-CT0279-040500-017-a10 CT0279 Homo sapiens cDNA   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 10534                  | 23569                 | 37177             | 0.84                 | 1.0E-36                                       | AW856888.1               | EST_HUMAN                     | RC3-CT0279-040500-017-e10 CT0279 Homo sapiens cDNA   |
| 11160                  | 24289                 | 37895             | 2.55                 | 1.0E-36                                       | AW897638.1               | EST_HUMAN                     | CM3-NN0061-140400-147-r12 NN0061 Homo sapiens cDNA   |
| 11682                  | 24741                 | 38432             | 3.55                 | 1.0E-36                                       | AW504143.1               | EST_HUMAN                     | UHF-BN0-ale-o-03-0-JL1 NIH_MGC_50 Homo sapiens cDNA clone IMAGE:3079277 5'   |
| 12048                  | 25029                 |                   | 10.8                 | 1.0E-36                                       | 11646901                 | NT                            | Homo sapiens PR3227 protein (PR3227), mRNA   |
| 12340                  | 26245                 |                   | 2.83                 | 1.0E-36                                       | 11418177                 | NT                            | Homo sapiens Ran GTPase activating protein 1 (RANGAP1), mRNA   |
| 12836                  | 26556                 |                   | 6.76                 | 1.0E-36                                       | AL163213.2               | NT                            | Homo sapiens chromosome 21 segment HS21C013  |
| 13131                  | 29737                 |                   | 2.78                 | 1.0E-36                                       | AF202723.1               | NT                            | Homo sapiens Sac1 unc-84 domain protein 2 (SUN2) mRNA, partial cds   |
| 7539                   | 20612                 | 34087             | 2.27                 | 9.0E-37                                       | AW009277.1               | EST_HUMAN                     | ws80607.x1 NCI_CGAP_C03 Homo sapiens cDNA clone IMAGE:2504245 3'   |
| 7639                   | 20612                 | 34088             | 2.27                 | 9.0E-37                                       | AW009277.1               | EST_HUMAN                     | ws80607.x1 NCI_CGAP_C03 Homo sapiens cDNA clone IMAGE:2504245 3'   |
| 12619                  | 25417                 |                   | 3.57                 | 9.0E-37                                       | W22618.1                 | EST_HUMAN                     | 7304 Human retina cDNA Tap5094-cleaved sublibrary Homo sapiens cDNA not directional  |
| 3436                   | 16604                 | 28624             | 1.4                  | 8.0E-37                                       | 4757979                  | NT                            | Homo sapiens chimerin (chimerin) 2 (CHN2) mRNA   |
| 6363                   | 18566                 |                   | 1.7                  | 8.0E-37                                       | BE698077.1               | EST_HUMAN                     | CM0-UT0003-050800-503-d09 UT0003 Homo sapiens cDNA   |
| 5949                   | 19135                 | 32448             | 3.48                 | 8.0E-37                                       | BE350127.1               | EST_HUMAN                     | h09g01.x1 NCI_CGAP_K0d13 Homo sapiens cDNA clone IMAGE:3148256 3' similar to contains MER29.b3   |
| 5949                   | 19135                 | 32449             | 3.48                 | 8.0E-37                                       | BE350127.1               | EST_HUMAN                     | MER29 repetitive element;  |
| 5968                   | 19183                 | 32505             | 7.08                 | 8.0E-37                                       | AW840840.1               | EST_HUMAN                     | MER29 repetitive element;  |
| 8068                   | 21160                 | 34670             | 6.2                  | 8.0E-37                                       | X87344.1                 | NT                            | H.sapiens DMA, DMB, HLA-Z1, IPP2, LMP2, TAP1, LMP7, TAP2, DOB, DOB2 and RING8, 9, 13 and 14 genes  |
| 1313                   | 14469                 |                   | 4.82                 | 7.0E-37                                       | AL042800.1               | EST_HUMAN                     | DKFZp434E0422_r1 434 (synonym: hhes3) Homo sapiens cDNA clone DKFZp434E0422 5'   |
| 5228                   | 18350                 | 31320             | 3.04                 | 7.0E-37                                       | AW868823.1               | EST_HUMAN                     | EST1780800 MAGC sequences, MAGJ Homo sapiens cDNA  |
| 10994                  | 24073                 | 37706             | 8.68                 | 7.0E-37                                       | AI817700.1               | EST_HUMAN                     | wk25b11.x1 NCI_CGAP_Bim25 Homo sapiens cDNA clone IMAGE:2413341 3' similar to contains PTR5.12   |
| 11134                  | 24208                 | 37831             | 1.89                 | 7.0E-37                                       | AI536702.1               | EST_HUMAN                     | PTR5 repetitive element;   |
| 8634                   | 21714                 | 35251             | 0.59                 | 6.0E-37                                       | AF168689.1               | NT                            | trn87g03.x1 NCI_CGAP_Bim25 Homo sapiens cDNA clone IMAGE:2165140 3' similar to contains L1.b3 L1 repetitive element;   |
| 12884                  | 25575                 |                   | 2.3                  | 6.0E-37                                       | U78308.1                 | NT                            | Homo sapiens probocadherin alpha 10 alternate isoform (PCDH-alpha10) mRNA, complete cds  |
| 12884                  | 25641                 |                   | 4.5                  | 6.0E-37                                       | AF202723.1               | NT                            | Human olfactory receptor cfr17-201-1 (OR17-201-1) gene, olfactory receptor cfr17-32 (OR17-32) gene and olfactory receptor pseudo cfr17-01 (OR17-01) pseudogene, complete cds |
| 6218                   | 19393                 | 32741             | 4.3                  | 5.0E-37                                       | AA307123.1               | EST_HUMAN                     | Homo sapiens Sac1 unc-84 domain protein 2 (SUN2) mRNA, partial cds   |
| 6218                   | 19393                 | 32742             | 4.3                  | 5.0E-37                                       | AA307123.1               | EST_HUMAN                     | EST178035 Colon carcinoma (HCC) cell line Homo sapiens cDNA 5' end   |
| 8956                   | 22035                 | 35576             | 1.03                 | 5.0E-37                                       | AV750211.1               | EST_HUMAN                     | EST178035 Colon carcinoma (HCC) cell line Homo sapiens cDNA 5' end   |
| 11160                  | 24231                 |                   | 4.02                 | 5.0E-37                                       | 7657117                  | NT                            | AV750211 NPC Homo sapiens cDNA clone NPC8GH09 5'   |
| 12335                  | 25242                 |                   | 3.63                 | 5.0E-37                                       | AF149773.1               | NT                            | Homo sapiens glycine C-acyltransferase (2-amino-3-ketobutyrate-CoA ligase) (GCAT), mRNA  |

Page 282 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 2495                   | 19322                 | 28741             | 2.97                 | 4.0E-37                                       | AA702794.1               | EST_HUMAN                     | 280504.s1 Sources fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:448015 3'   |
| 6416                   | 19885                 | 32947             | 0.68                 | 4.0E-37                                       | AW794502.1               | EST_HUMAN                     | RC6-UM0014-210200-021-H05 UM0014 Homo sapiens cDNA  |
| 9558                   | 22821                 | 36192             | 0.66                 | 4.0E-37                                       | AA843808.1               | EST_HUMAN                     | ak09cd2.s1 Sources parathyroid_tumor_NbHPA Homo sapiens cDNA clone IMAGE:1405442 3'   |
| 2074                   | 15214                 | 28332             | 3.42                 | 3.0E-37                                       | AL048856.1               | EST_HUMAN                     | DKFZp434L2418_r1 434 (synonym: htes3) Homo sapiens cDNA clone DKFZp434L2418   |
| 2074                   | 15214                 | 28333             | 3.42                 | 3.0E-37                                       | AL048856.1               | EST_HUMAN                     | DKFZp434L2418_r1 434 (synonym: htes3) Homo sapiens cDNA clone DKFZp434L2418   |
| 2581                   | 17708                 |                   | 1.64                 | 3.0E-37                                       | AW981150.1               | EST_HUMAN                     | EST1373222 IMAGE resequences, MAGF Homo sapiens cDNA  |
| 3030                   | 18208                 |                   | 4.02                 | 3.0E-37                                       | AW981150.1               | EST_HUMAN                     | EST1373222 IMAGE resequences, MAGF Homo sapiens cDNA  |
| 5885                   | 19170                 | 32492             | 0.7                  | 3.0E-37                                       | AL138274.1               | EST_HUMAN                     | DKFZp547G067_r1 547 (synonym: hfr1) Homo sapiens cDNA clone DKFZp547G067 5'   |
| 7728                   | 20780                 | 34279             | 0.72                 | 3.0E-37                                       | AI749562.1               | EST_HUMAN                     | ac34c05.x1 Baritased colon HPLRB7 Homo sapiens cDNA clone IMAGE:2373898 3' similar to TR:Q13637   |
| 302                    | 13629                 | 26666             | 0.89                 | 2.0E-37                                       | D89790.1                 | NT                            | Q13637 SIMILAR TO POGO ELEMENT ;  |
| 302                    | 13629                 | 26667             | 0.89                 | 2.0E-37                                       | D89790.1                 | NT                            | Homo sapiens mRNA for AML1, complete cds  |
| 1105                   | 14270                 | 27328             | 2.53                 | 2.0E-37                                       | AI131202.1               | EST_HUMAN                     | Homo sapiens mRNA for AML1, complete cds  |
| 1105                   | 14270                 | 27329             | 2.53                 | 2.0E-37                                       | AI131202.1               | EST_HUMAN                     | AL131202 NT2RP3 Homo sapiens cDNA clone NT2RP3002168 5'   |
| 2021                   | 15162                 | 28267             | 1.32                 | 2.0E-37                                       | AL163247.2               | NT                            | AL131202 NT2RP3 Homo sapiens cDNA clone NT2RP3002166 5'   |
| 3999                   | 17158                 | 30162             | 6.71                 | 2.0E-37                                       | 4903210                  | NT                            | Homo sapiens chromosome 21 segment HS21C047   |
| 4380                   | 17503                 | 30485             | 0.6                  | 2.0E-37                                       | 4826685                  | NT                            | Homo sapiens cytochrome P450, subfamily XXVIA (steroid 27-hydroxylase, cerebroside oxidase)   |
| 5504                   | 18703                 |                   | 0.9                  | 2.0E-37                                       | BF035327.1               | EST_HUMAN                     | Homo sapiens DEAD/HD (Asp-Glu-Ala-Asp/His) box polypeptide 1 (DIDX1) mRNA   |
| 6076                   | 19335                 | 33224             | 0.6                  | 2.0E-37                                       | 11690817                 | NT                            | 601458531F1 NIH_MGC_66 Homo sapiens cDNA clone IMAGE:39862088 5'  |
| 6788                   | 19553                 | 33353             | 3.72                 | 2.0E-37                                       | AA348720.1               | EST_HUMAN                     | Homo sapiens mouse thiamin pyrophosphokinase homolog (TPK1), mRNA   |
| 8185                   | 21267                 | 34790             | 0.47                 | 2.0E-37                                       | BE537764.1               | EST_HUMAN                     | EST162831 Fetal heart II Homo sapiens cDNA 5' end   |
| 8185                   | 21267                 | 34791             | 0.47                 | 2.0E-37                                       | BE537764.1               | EST_HUMAN                     | 601067534F1 NIH_MGC_10 Homo sapiens cDNA clone IMAGE:3453957 5'   |
| 8227                   | 21309                 | 34829             | 2.32                 | 2.0E-37                                       | BF204032.1               | EST_HUMAN                     | 601067534F1 NIH_MGC_10 Homo sapiens cDNA clone IMAGE:3453957 5'   |
| 11856                  | 24844                 | 38541             | 10.07                | 2.0E-37                                       | AF170013.1               | NT                            | 601869157F1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:4111408 5'   |
| 12797                  | 25770                 |                   | 1.44                 | 2.0E-37                                       | 11417972                 | NT                            | Homo sapiens J domain containing protein 1 isoform b (JDP1) mRNA, complete cds  |
| 13184                  | 25770                 |                   | 4.19                 | 2.0E-37                                       | 11417972                 | NT                            | Homo sapiens pascadillo (zabrafish) homolog 1, containing BRCT domain (PES1), mRNA  |
| 2154                   | 15280                 | 28417             | 6.96                 | 1.0E-37                                       | AL165281.2               | NT                            | Homo sapiens pascadillo (zabrafish) homolog 1, containing BRCT domain (PES1), mRNA  |
| 3267                   | 16441                 | 31158             | 1.03                 | 1.0E-37                                       | AW862082.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C081   |
| 5055                   | 18163                 | 31158             | 2.34                 | 1.0E-37                                       | BF371719.1               | EST_HUMAN                     | RC3-CT0347-210400-016-H03 CT0347 Homo sapiens cDNA  |
| 6127                   | 19308                 |                   | 0.89                 | 1.0E-37                                       | 7305360                  | NT                            | QV0-FN0180-280700-318-c10 FN0180 Homo sapiens cDNA  |
| 8408                   | 21480                 | 35019             | 1.12                 | 1.0E-37                                       | BE546032.1               | EST_HUMAN                     | Mus musculus obogelin (Obog), mRNA  |
| 8933                   | 22012                 | 35551             | 3.59                 | 1.0E-37                                       | AA171406.1               | EST_HUMAN                     | 601072419F1 NIH_MGC_12 Homo sapiens cDNA clone IMAGE:3458308 5'   |
|                        |                       |                   |                      |   |                          |                               | zpx21002.1 Stratiogene neuroepithelium (#937231) Homo sapiens cDNA clone IMAGE:610059 5' similar to contains L1.12 L1 repetitive element; |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 10937                  | 24019                 | 37652             | 2.19                 | 1.0E-37                                       | M22878.1                 | NT                            | Human somatic cytochrome c (HC1) processed pseudogene, complete cds                      |
| 12871                  | 25447                 |                   | 1.94                 | 1.0E-37                                       | BE771814.1               | EST_HUMAN                     | CM3-FT0086-140700-243-407 FT0086 Homo sapiens cDNA                                       |
| 5838                   | 19086                 | 32388             | 1.72                 | 9.0E-38                                       | 10048482                 | NT                            | Rattus norvegicus multidomain premyosin cytochrome protein Plocdo (LOC56768), mRNA       |
| 1249                   | 14408                 | 27470             | 1.96                 | 8.0E-38                                       | 11436855                 | NT                            | Homo sapiens Grib2-associated binder 2 (KIAA0571), mRNA                                  |
| 2587                   | 15692                 | 28817             | 1.21                 | 8.0E-38                                       | BF346221.1               | EST_HUMAN                     | 802018401F1 NCI CGAP_Bim67 Homo sapiens cDNA clone IMAGE:4183982 5'                      |
| 12735                  | 14408                 | 27470             | 1.37                 | 8.0E-38                                       | 11436855                 | NT                            | Homo sapiens Grib2-associated binder 2 (KIAA0571), mRNA                                  |
| 13210                  | 26049                 |                   | 1.44                 | 8.0E-38                                       | AB002059.1               | NT                            | Homo sapiens DNA for Human P2XM, complete cds  |
| 2264                   | 15387                 | 28515             | 1.7                  | 7.0E-38                                       | AW972825.1               | EST_HUMAN                     | EST384820 IMAGE resequences, MAGL Homo sapiens cDNA                                      |
| 3107                   | 16283                 | 29239             | 1.98                 | 6.0E-38                                       | BF033033.1               | EST_HUMAN                     | 601485722F1 NIH_MGC_68 Homo sapiens cDNA clone IMAGE:3858348 5'                          |
| 5706                   | 18899                 | 32192             | 0.98                 | 6.0E-38                                       | 11425114                 | NT                            | Homo sapiens zinc finger protein ZNF287 (ZNF287), mRNA                                   |
| 5706                   | 18899                 | 32193             | 0.88                 | 6.0E-38                                       | 11425114                 | NT                            | Homo sapiens zinc finger protein ZNF287 (ZNF287), mRNA                                   |
| 7482                   | 20557                 | 34029             | 0.59                 | 6.0E-38                                       | 8923130                  | NT                            | Homo sapiens zinc finger protein ZNF287 (ZNF287), mRNA                                   |
| 12189                  | 26147                 |                   | 4.27                 | 6.0E-38                                       | 11436847                 | NT                            | Homo sapiens hypothetical protein FLJ20128 (FLJ20128), mRNA                              |
| 12704                  | 25483                 | 32025             | 6.66                 | 6.0E-38                                       | AB002059.1               | NT                            | Homo sapiens chromosome 12 open reading frame 3 (C12ORF3), mRNA                          |
| 13160                  | 25913                 | 31861             | 1.79                 | 6.0E-38                                       | 11418164                 | EST_HUMAN                     | Homo sapiens DNA for Human P2XM, complete cds  |
| 745                    | 13826                 | 28967             | 0.9                  | 5.0E-38                                       | AW971819.1               | EST_HUMAN                     | Homo sapiens adenylosuccinate lyase (ADSL), mRNA   |
| 2625                   | 15650                 | 28774             | 4.57                 | 5.0E-38                                       | AJ237740.1               | NT                            | EST383908 IMAGE resequences, MAGL Homo sapiens cDNA                                      |
| 3796                   | 16957                 | 29861             | 0.94                 | 5.0E-38                                       | 7549804                  | NT                            | Homo sapiens RUBIR gene (partial), exon 8  |
| 3971                   | 16957                 | 29861             | 0.77                 | 5.0E-38                                       | 7549804                  | NT                            | Homo sapiens deiodinase, iodotyrosine, type II (DIO2), transcript variant 2, mRNA        |
| 5288                   | 15650                 | 28774             | 0.98                 | 5.0E-38                                       | AJ237740.1               | NT                            | Homo sapiens deiodinase, iodotyrosine, type II (DIO2), transcript variant 2, mRNA        |
| 7172                   | 20303                 | 33748             | 1.83                 | 5.0E-38                                       | BE571610.1               | EST_HUMAN                     | Homo sapiens RUBIR gene (partial), exon 8  |
| 121                    | 13351                 | 26380             | 4.28                 | 4.0E-38                                       | Z25486.1                 | NT                            | 601450148F1 NIH_MGC_65 Homo sapiens cDNA clone IMAGE:3934074 5'                          |
| 121                    | 13351                 | 26381             | 4.28                 | 4.0E-38                                       | Z25486.1                 | NT                            | B. taurus mitochondrial aspartate aminotransferase mRNA, complete CDS                    |
| 1183                   | 14346                 | 27403             | 1.15                 | 3.0E-38                                       | 11436847                 | NT                            | B. taurus mitochondrial aspartate aminotransferase mRNA, complete CDS                    |
| 2187                   | 15302                 |                   | 4.42                 | 3.0E-38                                       | AF003530.1               | NT                            | Homo sapiens chromosome 12 open reading frame 3 (C12ORF3), mRNA                          |
| 3787                   | 16948                 |                   | 1.49                 | 3.0E-38                                       | 7549807                  | NT                            | Homo sapiens homeobox protein CDX4 (CDX4) gene, complete cds and flanking repeat regions |
| 3958                   | 17116                 | 30119             | 2.46                 | 3.0E-38                                       | P53538                   | SWISSPROT                     | Homo sapiens HIRA interacting protein 4 (dnaj-lls) (HIRIP4), mRNA                        |
| 3958                   | 17116                 | 30120             | 2.46                 | 3.0E-38                                       | P53538                   | SWISSPROT                     | SSU72 PROTEIN  |
| 4736                   | 17871                 |                   | 0.61                 | 3.0E-38                                       | BE278301.1               | EST_HUMAN                     | SSU72 PROTEIN  |
| 6863                   | 26838                 | 32453             | 6.89                 | 3.0E-38                                       | AL163300.2               | NT                            | 601157633F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3504272 5'                          |
| 7393                   | 20471                 | 33937             | 0.58                 | 3.0E-38                                       | AW302481.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C100  |
| 7763                   | 20822                 | 34313             | 6.53                 | 3.0E-38                                       | BF373964.1               | EST_HUMAN                     | CM3-FT0181-140700-241-407 FT0181 Homo sapiens cDNA                                       |
| 8851                   | 21930                 | 35489             | 2.11                 | 3.0E-38                                       | H85494.1                 | EST_HUMAN                     | yw68b04.1 Soares melanocyte 2Nblm Homo sapiens cDNA clone IMAGE:249775 5'                |
| 8851                   | 21930                 | 35470             | 2.11                 | 3.0E-38                                       | H85494.1                 | EST_HUMAN                     | yw68b04.1 Soares melanocyte 2Nblm Homo sapiens cDNA clone IMAGE:249775 5'                |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|-------------------------|-------------------------------|--|
| 10177                  | 23214                 |                   | 1.84                 | 3.0E-38                                       | AL163248.2              | NT                            | Homo sapiens chromosome 21 segment HS21C048  |
| 11588                  | 24651                 |                   | 1.88                 | 3.0E-38                                       | AL163248.2              | NT                            | Homo sapiens chromosome 21 segment HS21C048  |
| 12990                  | 14346                 | 27403             | 1.23                 | 3.0E-38                                       | 11433947                | NT                            | Homo sapiens chromosome 12 open reading frame 3 (C12ORF3), mRNA  |
| 61                     | 13290                 | 26303             | 1.06                 | 2.0E-38                                       | AL163248.2              | NT                            | Homo sapiens chromosome 21 segment HS21C048  |
| 1411                   | 14565                 | 27639             | 3.66                 | 2.0E-38                                       | 5902097                 | NT                            | Homo sapiens SMT3 (suppressor of mit two 3, yeast) homolog 2 (SMT3H2), mRNA  |
| 1678                   | 14830                 | 27814             | 13.95                | 2.0E-38                                       | AA437353.1              | EST_HUMAN                     | z630401.1 Scores ovary tumor NbHOT Homo sapiens cDNA clone IMAGE:70785 5' similar to SW:MA12_RABIT P45701 MANNOSYL-OLIGOSACCHARIDE ALPHA-1,2-MANNOSIDASE ; |
| 1678                   | 14830                 | 27815             | 13.95                | 2.0E-38                                       | AA437353.1              | EST_HUMAN                     | z630401.1 Scores ovary tumor NbHOT Homo sapiens cDNA clone IMAGE:70785 5' similar to SW:MA12_RABIT P45701 MANNOSYL-OLIGOSACCHARIDE ALPHA-1,2-MANNOSIDASE ; |
| 3622                   | 16786                 |                   | 0.92                 | 2.0E-38                                       | AF070670.1              | NT                            | Homo sapiens protein phosphatase 2C alpha 2 mRNA, complete cds   |
| 4704                   | 17839                 | 30824             | 18.99                | 2.0E-38                                       | 4557887                 | NT                            | Homo sapiens keratin 18 (KRT18) mRNA   |
| 5282                   | 18339                 | 31312             | 0.68                 | 2.0E-38                                       | AA437181.1              | EST_HUMAN                     | z61d09.1 Scores testis_NHT Homo sapiens cDNA clone IMAGE:788129 5' similar to TR:G817957   |
| 5838                   | 19026                 | 32331             | 0.75                 | 2.0E-38                                       | Z26634.2                | NT                            | G817957 GLYCINE RECEPTOR SUBUNIT ALPHA 4 ;   |
| 5838                   | 19026                 | 32332             | 0.75                 | 2.0E-38                                       | Z26634.2                | NT                            | Homo sapiens mRNA for ankyrin B (440 kDa)  |
| 7897                   | 20949                 | 34467             | 1.47                 | 2.0E-38                                       | AV721103.1              | EST_HUMAN                     | Homo sapiens mRNA for ankyrin B (440 kDa)  |
| 8680                   | 21760                 |                   | 4.47                 | 2.0E-38                                       | BE166890.1              | EST_HUMAN                     | AV721103 HTB Homo sapiens cDNA clone HTBARH11 5'   |
| 9096                   | 22176                 | 35719             | 0.49                 | 2.0E-38                                       | F08450.1                | EST_HUMAN                     | MR3-HT0487-150200-113-g01 HT0487 Homo sapiens cDNA   |
| 9165                   | 22243                 | 35786             | 1.28                 | 2.0E-38                                       | AF069755.1              | NT                            | HSC18F031 normalized infant brain cDNA Homo sapiens cDNA clone c-18f03   |
|                        |                       |                   |                      |   |                         |                               | Homo sapiens orphan G protein-coupled receptor HG20 (HG20) mRNA, complete cds  |
|                        |                       |                   |                      |   |                         |                               | h008402.x1 NC1 CGAP Lu24 Homo sapiens cDNA clone IMAGE:3160180 3' similar to TR:O02710 O02710  |
| 9422                   | 22498                 |                   | 1.36                 | 2.0E-38                                       | BE222256.1              | EST_HUMAN                     | GAG POLYPROTEIN. ;   |
| 10665                  | 23699                 | 37309             | 1.67                 | 2.0E-38                                       | D63479.2                | NT                            | Homo sapiens mRNA for KIAA0745 protein, partial cds  |
| 11781                  | 24771                 | 38467             | 4.86                 | 2.0E-38                                       | BE12780.1               | EST_HUMAN                     | QV2-HT06888-080800-293-a05 HT06888 Homo sapiens cDNA   |
| 11939                  | 24925                 | 38626             | 2.88                 | 2.0E-38                                       | AF190501.1              | NT                            | Homo sapiens leucine-rich repeat-containing G protein-coupled receptor 6 (LGR6) mRNA, partial cds  |
| 11939                  | 24926                 | 38627             | 2.86                 | 2.0E-38                                       | AF190501.1              | NT                            | Homo sapiens leucine-rich repeat-containing G protein-coupled receptor 6 (LGR6) mRNA, partial cds  |
| 12244                  | 25188                 |                   | 6.21                 | 2.0E-38                                       | AV726988.1              | EST_HUMAN                     | AV726988 HTC Homo sapiens cDNA clone HTCAH-07 5'   |
| 12246                  | 25187                 |                   | 1.28                 | 2.0E-38                                       | AB012723.1              | NT                            | Homo sapiens gene for kinesin-like protein, complete cds   |
| 12546                  | 25370                 |                   | 3.36                 | 2.0E-38                                       | M55630.1                | NT                            | Human topoisomerase I pseudogene 2   |
| 12569                  | 25381                 | 32073             | 4.81                 | 2.0E-38                                       | HE5641.1                | EST_HUMAN                     | CHR220580 Chromosome 22 exon Homo sapiens cDNA clone C22_788 5'  |
| 12632                  | 25426                 |                   | 2.87                 | 2.0E-38                                       | S74006.1                | NT                            | E1 beta-pyruvate dehydrogenase beta (promoter) [human, placenta, Genomic, 1280 nt]   |
| 13174                  | 25762                 |                   | 1.35                 | 2.0E-38                                       | 11418248                | NT                            | Homo sapiens sulfotransferase-related protein (SULTX3), mRNA   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO. | Exon<br>SEQ ID<br>NO. | ORF SEQ<br>ID NO. | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 1117                   | 14282                 |                   | 1.96                 | 1.0E-38                                       | AA401570.1               | EST_HUMAN                     | zu62802.r1 Sources_testis_NHT Homo sapiens cDNA clone IMAGE:742539 5' similar to contains element          |
| 2055                   | 15196                 | 28310             | 2.82                 | 1.0E-38                                       | 4885288                  | NT                            | MER19 repetitive element ;   |
| 2077                   | 15217                 | 28338             | 1.33                 | 1.0E-38                                       | 7661689                  | NT                            | Homo sapiens guanine nucleotide binding protein-like 1 (GNL1), mRNA  |
| 2564                   | 15688                 | 28815             | 1.89                 | 1.0E-38                                       | AF270831.1               | NT                            | Homo sapiens KIAA0173 gene product (KIAA0173), mRNA  |
| 4271                   | 17416                 | 30405             | 0.93                 | 1.0E-38                                       | AB037863.1               | NT                            | Homo sapiens cyclin K (CCNK) gene, exon 7  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens mRNA for KIAA1442 protein, partial cds  |
| 4439                   | 17579                 | 30558             | 0.6                  | 1.0E-38                                       | 4505018                  | NT                            | Homo sapiens low density lipoprotein receptor-related protein 6 (LRP6) mRNA, and translated products       |
| 4444                   | 17584                 | 30563             | 2.15                 | 1.0E-38                                       | AL163203.2               | NT                            | Homo sapiens chromosome 21 segment HS21C003  |
| 4444                   | 17584                 | 30564             | 2.15                 | 1.0E-38                                       | AL163203.2               | NT                            | Homo sapiens chromosome 21 segment HS21C003  |
| 4719                   | 17854                 | 30837             | 1.08                 | 1.0E-38                                       | 8822543                  | NT                            | Homo sapiens hypothetical protein FLJ10800 (FLJ10800), mRNA  |
| 5268                   | 18387                 | 31355             | 1.89                 | 1.0E-38                                       | AL163280.2               | NT                            | Homo sapiens chromosome 21 segment HS21C080  |
| 6161                   | 19327                 | 32672             | 4.59                 | 1.0E-38                                       | 7305360                  | NT                            | Mus musculus obogelin (Obog), mRNA   |
| 6161                   | 19327                 | 32673             | 4.59                 | 1.0E-38                                       | 7305360                  | NT                            | Mus musculus obogelin (Obog), mRNA   |
| 7563                   | 20635                 | 34110             | 2.55                 | 1.0E-38                                       | AB014512.1               | NT                            | Homo sapiens mRNA for KIAA0612 protein, partial cds  |
| 8364                   | 22429                 | 36987             | 0.58                 | 1.0E-38                                       | 11422250                 | NT                            | Homo sapiens hypothetical protein FLJ10800 (FLJ10800), mRNA  |
| 9810                   | 22685                 | 38236             | 6.31                 | 1.0E-38                                       | BES50127.1               | EST_HUMAN                     | h09g01.x1 NCL CGAP_Kid19 Homo sapiens cDNA clone IMAGE:3146256 3' similar to contains MER29.b3             |
| 12403                  | 25877                 |                   | 4.79                 | 1.0E-38                                       | AL163284.2               | NT                            | MER29 repetitive element ;   |
| 12116                  | 25096                 | 38801             | 1.84                 | 9.0E-39                                       | AA112438.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C084  |
| 55                     | 13284                 | 28308             | 4.93                 | 8.0E-39                                       | 4502312                  | NT                            | znt2707.r1 Stratiotes parviflorus (8337208) Homo sapiens cDNA clone IMAGE:526885 5'                        |
| 1425                   | 14579                 | 27652             | 1.3                  | 8.0E-39                                       | 4758228                  | NT                            | Homo sapiens ATPase, H+ transporting, lysosomal (vacuolar proton pump) 16K0 (ATP6C) mRNA                   |
| 1876                   | 16020                 |                   | 1.8                  | 8.0E-39                                       | AI823404.1               | EST_HUMAN                     | Homo sapiens estrogen receptor-binding fragment-associated gene 9 (EBAG9) mRNA                             |
| 2160                   | 15298                 | 28421             | 7.08                 | 7.0E-39                                       | AL163227.2               | NT                            | wh33110.x1 NCL CGAP_Kid11 Homo sapiens cDNA clone IMAGE:2384491 3' similar to TR:P87890 P87890             |
| 11047                  | 24124                 | 31768             | 2.4                  | 6.0E-39                                       | BF331829.1               | EST_HUMAN                     | POL PROTEIN ;  |
| 13064                  | 25697                 |                   | 2.24                 | 6.0E-39                                       | BE670394.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C027  |
| 1032                   | 14201                 | 27269             | 1.84                 | 5.0E-39                                       | AF003528.1               | NT                            | QV1-BT0631-040800-357-62 BT0631 Homo sapiens cDNA  |
| 3050                   | 16228                 | 28247             | 9.33                 | 5.0E-39                                       | AI760154.1               | EST_HUMAN                     | 7c94cd3.x1 NCL CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3284356 3' similar to WP.R151.6                     |
| 12720                  | 25479                 |                   | 1.53                 | 6.0E-39                                       | 11420289                 | NT                            | CE00828 ;  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens X-linked arylidic ectodermal dysplasia protein gene (EDA), exon 2 and flanking repeat regions |
|                        |                       |                   |                      |   |                          |                               | et38b04.x1 Barcode colon HFLRB7 Homo sapiens cDNA clone IMAGE:2374063 3' similar to TR:Q15408              |
|                        |                       |                   |                      |   |                          |                               | Q16408 NEUTRAL PROTEASE LARGE SUBUNIT ; contains LTR7.1 LTR7 repetitive element ;                          |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens hypothetical protein FLJ10803 (FLJ10803), mRNA  |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 564                    | 13755                 | 26762             | 4.39                 | 4.0E-39                                       | AB015610.1               | NT                            | Chlorobacter ethiops mRNA for ribosomal protein S4X, complete cds                                   |
| 3683                   | 18828                 | 20835             | 0.9                  | 4.0E-39                                       | AL163210.2               | NT                            | Homo sapiens chromosome 21 segment HS21C010   |
| 5950                   | 18138                 | 32460             | 0.8                  | 4.0E-39                                       | 11422113                 | NT                            | Homo sapiens EBNA-2 co-activator (100KD) (p100), mRNA   |
| 5950                   | 18138                 | 32451             | 0.6                  | 4.0E-39                                       | 11422113                 | NT                            | Homo sapiens EBNA-2 co-activator (100KD) (p100), mRNA   |
| 8267                   | 21349                 | 34864             | 1.02                 | 4.0E-39                                       | AA682948.1               | EST_HUMAN                     | ss22g04.s1 Strabagene echizo brain S11 Homo sapiens cDNA clone IMAGE:1020438 3' similar to contains |
| 9530                   | 22595                 | 36165             | 0.46                 | 4.0E-39                                       | D84116.1                 | NT                            | OPR1.1 OFR repetitive element;  |
| 9530                   | 22595                 | 36166             | 0.48                 | 4.0E-39                                       | D84116.1                 | NT                            | Homo sapiens DNA for prostacyclin synthase, exon 2  |
| 12744                  | 25404                 |                   | 6.36                 | 4.0E-39                                       | 11418177                 | NT                            | Homo sapiens DNA for prostacyclin synthase, exon 2  |
| 12884                  | 25686                 |                   | 2.58                 | 4.0E-39                                       | BE836452.1               | EST_HUMAN                     | Homo sapiens Ran GTPase activating protein 1 (RANGAP1), mRNA  |
| 48                     | 13287                 | 26297             | 11.96                | 3.0E-39                                       | AA631849.1               | EST_HUMAN                     | QV0-FN0063-260600-278-c06 FN0063 Homo sapiens cDNA  |
| 48                     | 13287                 | 26298             | 11.96                | 3.0E-39                                       | AA631849.1               | EST_HUMAN                     | fric16 Regional genomic DNA specific cDNA library Homo sapiens cDNA clone CR12-1                    |
| 48                     | 13287                 | 26299             | 11.96                | 3.0E-39                                       | AA631849.1               | EST_HUMAN                     | fric16 Regional genomic DNA specific cDNA library Homo sapiens cDNA clone CR12-1                    |
| 12236                  | 25180                 | 38348             | 6.59                 | 3.0E-39                                       | A084657.1                | EST_HUMAN                     | fric16 Regional genomic DNA specific cDNA library Homo sapiens cDNA clone CR12-1                    |
| 12236                  | 25180                 | 38349             | 6.59                 | 3.0E-39                                       | A084657.1                | EST_HUMAN                     | alpha3a10.s1 Soares_NHMPu_S1 Homo sapiens cDNA clone IMAGE:1600988 3' similar to SW:GTR5_RAT        |
| 12284                  | 25212                 |                   | 5.72                 | 3.0E-39                                       | H37803.1                 | EST_HUMAN                     | alpha3a10.s1 Soares_NHMPu_S1 Homo sapiens cDNA clone IMAGE:1600988 3' similar to SW:GTR5_RAT        |
| 920                    | 14095                 |                   | 7.78                 | 2.0E-39                                       | BE408203.1               | EST_HUMAN                     | P43427 GLUCOSE TRANSPORTER TYPE 5, SMALL INTESTINE  |
| 935                    | 14110                 |                   | 11.55                | 2.0E-39                                       | A1525119.1               | EST_HUMAN                     | P43427 GLUCOSE TRANSPORTER TYPE 5, SMALL INTESTINE  |
| 1057                   | 14223                 |                   | 3.9                  | 2.0E-39                                       | AF000573.1               | NT                            | Yp51c06.s1 Soares retina N2b4HR Homo sapiens cDNA clone IMAGE:190954 3'                             |
| 1560                   | 14713                 |                   | 33.58                | 2.0E-39                                       | AW372318.1               | EST_HUMAN                     | 601801607F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3638289 5'                                     |
| 2030                   | 15171                 | 26279             | 4.48                 | 2.0E-39                                       | AA720574.1               | EST_HUMAN                     | promme-7 D01.1 brain tumor Homo sapiens cDNA 5'   |
| 2682                   | 15812                 | 26828             | 1.88                 | 2.0E-39                                       | AL163248.2               | NT                            | Homo sapiens homogenisate 1 2-dioxygenase gene, complete cds  |
| 4523                   | 17882                 | 30849             | 1.74                 | 2.0E-39                                       | BF370207.1               | EST_HUMAN                     | PM0-BT0340-211290-003-462 BT0340 Homo sapiens cDNA  |
| 5608                   | 18803                 | 31868             | 4.45                 | 2.0E-39                                       | AA608880.1               | EST_HUMAN                     | hw21g02.s1 NCL_CGAP_G080 Homo sapiens cDNA clone IMAGE:1241138 3' similar to contains THR13         |
| 7328                   | 20589                 | 34073             | 2.08                 | 2.0E-39                                       | AA608880.1               | EST_HUMAN                     | THR repetitive element;   |
| 7702                   | 20767                 | 34251             | 0.88                 | 2.0E-39                                       | AL163202.2               | NT                            | Homo sapiens chromosome 21 segment HS21C048   |
| 7702                   | 20767                 | 34252             | 0.88                 | 2.0E-39                                       | AL163202.2               | NT                            | Homo sapiens chromosome 21 segment HS21C048   |
| 8505                   | 21588                 | 36120             | 0.83                 | 2.0E-39                                       | AF078170.1               | NT                            | RC4-FN0037-280700-011-a10 FN0037 Homo sapiens cDNA  |
| 9828                   | 22888                 |                   | 0.79                 | 2.0E-39                                       | AF078170.1               | EST_HUMAN                     | RC4-FN0037-280700-011-a10 FN0037 Homo sapiens cDNA clone IMAGE:941683                               |
| 11716                  | 24756                 | 38452             | 2.13                 | 2.0E-39                                       | D86984.1                 | NT                            | ng68603.s1 NCL_CGAP_P1d Homo sapiens cDNA clone IMAGE:941683  |
| 1543                   | 14695                 | 27774             | 2.83                 | 1.0E-39                                       | AJ006345.1               | NT                            | zr08802.r1 Strabagene hNT neuron (4837283) Homo sapiens cDNA clone IMAGE:546651 5'                  |

Page 287 of 550  
Table 4

Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 1643                   | 14695                 | 27775             | 2.63                 | 1.0E-39                                       | AJ006345.1               | NT                            | Homo sapiens KVLQ11 gene  |
| 1651                   | 14714                 | 27781             | 5.98                 | 1.0E-39                                       | 7657020                  | NT                            | Homo sapiens DKFZP434P211 protein (DKFZP434P211), mRNA  |
| 1763                   | 14812                 | 28007             | 1.14                 | 1.0E-39                                       | H65224.1                 | EST_HUMAN                     | Chr220163 Chromosome 22 exon Homo sapiens cDNA clone C22_205 5'   |
| 4782                   | 17817                 | 30903             | 9.32                 | 1.0E-39                                       | AW851895.1               | EST_HUMAN                     | EST384065 MAGC resequences, MAG8 Homo sapiens cDNA  |
| 4782                   | 17817                 | 30904             | 9.32                 | 1.0E-39                                       | AW851895.1               | EST_HUMAN                     | EST384066 MAGC resequences, MAG8 Homo sapiens cDNA  |
| 4824                   | 17857                 | 30943             | 9.13                 | 1.0E-39                                       | 7657020                  | NT                            | Homo sapiens DKFZP434P211 protein (DKFZP434P211), mRNA  |
| 5474                   | 18673                 | 31686             | 0.82                 | 1.0E-39                                       | 11417342                 | NT                            | Homo sapiens sema domain, seven thrombospondin repeats (type 1 and type 1-like), transmembrane domain (TM) and short cytoplasmic domain, (semaphorin) 5A (SEMA5A), mRNA |
| 5474                   | 18673                 | 31687             | 0.82                 | 1.0E-39                                       | 11417342                 | NT                            | Homo sapiens sema domain, seven thrombospondin repeats (type 1 and type 1-like), transmembrane domain (TM) and short cytoplasmic domain, (semaphorin) 5A (SEMA5A), mRNA |
| 5747                   | 18939                 | 32239             | 1.2                  | 1.0E-39                                       | T80876.1                 | EST_HUMAN                     | y428g08.r1 Soares fetal liver spleen INFLS Homo sapiens cDNA clone IMAGE:109402 5' similar to contains  |
| 5781                   | 18973                 | 32278             | 4.65                 | 1.0E-39                                       | AJ278170.1               | NT                            | Alu repetitive element contains LTR1 repetitive element   |
| 5781                   | 18973                 | 32279             | 4.65                 | 1.0E-39                                       | AJ278170.1               | NT                            | Mus musculus mRNA for neuronal interacting factor X1 (NIX1) (Nix1 gene)   |
| 6985                   | 20193                 | 37867             | 1.95                 | 1.0E-39                                       | 11436736                 | NT                            | Homo sapiens tubby like protein 3 (TULP3), mRNA   |
| 7621                   | 20594                 | 34069             | 2.15                 | 1.0E-39                                       | D78132.1                 | NT                            | Homo sapiens mRNA for ras-related GTP-binding protein, complete cds   |
| 8782                   | 21841                 | 35382             | 1.04                 | 1.0E-39                                       | O46530                   | SWISSPROT                     | RIBONUCLEASE K6 PRECURSOR (RNASE K6)  |
| 11165                  | 24286                 | 37867             | 1.4                  | 1.0E-39                                       | 4758051                  | NT                            | Homo sapiens ribosomal protein S6 kinase, 80kD, polypeptide 5 (RPS8KA5) mRNA  |
| 568                    | 13781                 | 26785             | 2                    | 8.0E-40                                       | 5803210                  | NT                            | Homo sapiens UDP-glucose pyrophosphorylase 2 (UGP2), mRNA   |
| 1263                   | 14420                 | 27484             | 16.02                | 9.0E-40                                       | 4756145                  | NT                            | Homo sapiens AE-binding protein 1 (AEBP1) mRNA  |
| 1263                   | 14420                 | 27485             | 16.02                | 9.0E-40                                       | 4756145                  | NT                            | Homo sapiens AE-binding protein 1 (AEBP1) mRNA  |
| 1480                   | 14633                 | 27718             | 15.75                | 9.0E-40                                       | 4507512                  | NT                            | Homo sapiens tissue inhibitor of metalloproteinase 3 (Sorsby fundus dystrophy, pseudoinflammatory) (TIMP3), mRNA  |
| 3885                   | 17044                 | 30043             | 1.18                 | 9.0E-40                                       | 4507512                  | NT                            | mRNA  |
| 4081                   | 18487                 | 30242             | 3.89                 | 9.0E-40                                       | AB033070.1               | NT                            | Homo sapiens fragile X mental retardation 1 (FMR1) mRNA   |
| 4466                   | 17806                 | 30884             | 5.63                 | 9.0E-40                                       | 4507848                  | NT                            | Homo sapiens mRNA for KIAA1244 protein, partial cds   |
| 3106                   | 16282                 | 28288             | 1.04                 | 8.0E-40                                       | AA078165.1               | EST_HUMAN                     | Homo sapiens ubiquitin specific protease 13 (isopeptidase 1-3) (USP13) mRNA   |
| 4033                   | 17189                 |                   | 3.43                 | 8.0E-40                                       | BE36541.1                | EST_HUMAN                     | 7H15A04 Chromosome 7 HcLa cDNA Library Homo sapiens cDNA clone 7H15A04  |
| 7894                   | 20846                 | 34452             | 2.21                 | 7.0E-40                                       | U80325.1                 | NT                            | 601288958F1 NIH_MGC_8 Homo sapiens cDNA clone IMAGE:3618168 5'  |
| 7894                   | 20846                 | 34453             | 2.21                 | 7.0E-40                                       | U80325.1                 | NT                            | Human DNA polymerase gamma mRNA, nuclear gene encoding mitochondrial protein, complete cds  |
| 11196                  | 24208                 | 37834             | 2.63                 | 7.0E-40                                       | AL163248.2               | NT                            | Human DNA polymerase gamma mRNA, nuclear gene encoding mitochondrial protein, complete cds  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens chromosome 21 segment HS21C048   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 2788                   | 18004                 | 28011             | 9.91                 | 8.0E-40                                       | AA361275.1               | EST_HUMAN                     | EST70627 T-cell lymphoma Homo sapiens cDNA 5' and similar to zinc finger protein family   |
| 2788                   | 18004                 | 28012             | 9.91                 | 8.0E-40                                       | AA361276.1               | EST_HUMAN                     | EST70627 T-cell lymphoma Homo sapiens cDNA 5' and similar to zinc finger protein family   |
| 6060                   | 16242                 |                   | 1.85                 | 8.0E-40                                       | BE504786.1               | EST_HUMAN                     | h240g01.x1 NCI_CGAP_GC6 Homo sapiens cDNA clone IMAGE:3210480 3'  |
| 6276                   | 19449                 |                   | 1.38                 | 8.0E-40                                       | 7681989                  | NT                            | Homo sapiens KIAA0211 gene product (KIAA0211), mRNA   |
| 7076                   | 20128                 | 33544             | 3.04                 | 8.0E-40                                       | 11439783                 | NT                            | Homo sapiens fatty acid desaturase 1 (FADS1), mRNA  |
| 7076                   | 20128                 | 33546             | 3.04                 | 8.0E-40                                       | 11439783                 | NT                            | Homo sapiens fatty acid desaturase 1 (FADS1), mRNA  |
| 10182                  | 23219                 | 36811             | 6.09                 | 8.0E-40                                       | AV653028.1               | EST_HUMAN                     | AV653028 GLC Homo sapiens cDNA clone GLDGF04 3'   |
| 10182                  | 23219                 | 36812             | 6.09                 | 8.0E-40                                       | AV653028.1               | EST_HUMAN                     | AV653028 GLC Homo sapiens cDNA clone GLDGF04 3'   |
| 2670                   | 15791                 | 28907             | 2.75                 | 5.0E-40                                       | AL163285.2               | NT                            | Homo sapiens chromosome 21 segment HS21C085   |
| 1925                   | 16068                 | 28173             | 3.81                 | 4.0E-40                                       | AI686005.1               | EST_HUMAN                     | h91101.x1 NCI_CGAP_P128 Homo sapiens cDNA clone IMAGE:2248873 3' similar to TR:O73505 O73505 POL. PROTEIN. ;  |
| 2175                   | 15310                 |                   | 6.91                 | 4.0E-40                                       | AF009628.1               | NT                            | Homo sapiens X-linked arylidic ectodermal dysplasia protein gene (EDA), exon 2 and flanking repeat regions  |
| 4508                   | 17647                 | 30635             | 7.2                  | 4.0E-40                                       | 7682117                  | NT                            | Homo sapiens KIAA0433 protein (KIAA0433), mRNA  |
| 8070                   | 21152                 | 34672             | 0.84                 | 4.0E-40                                       | AU127831.1               | EST_HUMAN                     | AU127831 NT2RP2 Homo sapiens cDNA clone NT2RP2002172 5'   |
| 8181                   | 21263                 | 34785             | 6.98                 | 4.0E-40                                       | AA742809.1               | EST_HUMAN                     | m34e10.1 NCI_CGAP_Br4 Homo sapiens cDNA clone IMAGE:1222122   |
| 9255                   | 22332                 | 35881             | 5.84                 | 4.0E-40                                       | BE009416.1               | EST_HUMAN                     | PMO-BN0167-070500-002-h12 BN0167 Homo sapiens cDNA  |
| 9255                   | 22332                 | 35882             | 5.84                 | 4.0E-40                                       | BE009416.1               | EST_HUMAN                     | PMO-BN0167-070500-002-h12 BN0167 Homo sapiens cDNA  |
| 10555                  | 24038                 | 37671             | 1.96                 | 4.0E-40                                       | AW841595.1               | EST_HUMAN                     | RC1-CN0017-120200-012-e04 CN0017 Homo sapiens cDNA  |
| 4250                   | 17388                 | 30385             | 0.9                  | 3.0E-40                                       | AI823849.1               | EST_HUMAN                     | vh1287.x1 NCI_CGAP_Kd11 Homo sapiens cDNA clone IMAGE:2380549 3'  |
| 4983                   | 18122                 | 37615             | 0.83                 | 3.0E-40                                       | AA055118.1               | EST_HUMAN                     | z16r09.s1 Soares_fetal_heart_NbH19W Homo sapiens cDNA clone IMAGE:377163 3'   |
| 6592                   | 18752                 | 33137             | 0.86                 | 3.0E-40                                       | 4508738                  | NT                            | Homo sapiens ribosomal protein S6 kinase, 70kD, polypeptide 1 (RP-S6KB1) mRNA   |
| 6777                   | 19832                 | 33328             | 7.08                 | 3.0E-40                                       | 11417342                 | NT                            | Homo sapiens sema domain, seven thrombospondin repeats (type 1 and type 1-like), transmembrane domain (TM) and short cytoplasmic domain, (semaphorin) 5A (SEMA5A), mRNA |
| 8575                   | 21656                 | 35197             | 3.86                 | 3.0E-40                                       | 6464167                  | NT                            | Homo sapiens HBV associated factor (XAP4) mRNA  |
| 9169                   | 22247                 | 35780             | 1.27                 | 3.0E-40                                       | AF078779.1               | NT                            | Rattus norvegicus putative four repeat ion channel mRNA, complete cds   |
| 9412                   | 22488                 | 36050             | 1.6                  | 3.0E-40                                       | AF078779.1               | NT                            | Rattus norvegicus putative four repeat ion channel mRNA, complete cds   |
| 10899                  | 23983                 | 37615             | 1.49                 | 3.0E-40                                       | D86084.1                 | NT                            | Human mRNA for KIAA0208 gene, partial cds   |
| 11544                  | 24000                 | 38270             | 9.12                 | 3.0E-40                                       | 6005813                  | NT                            | Homo sapiens serine threonine protein kinase (NDR), mRNA  |
| 335                    | 13548                 |                   | 3.91                 | 2.0E-40                                       | AI223036.1               | EST_HUMAN                     | q952408.x1 Soares_leslie_NHT Homo sapiens cDNA clone IMAGE:1838847 3'   |
| 817                    | 13986                 |                   | 5.58                 | 2.0E-40                                       | AW303868.1               | EST_HUMAN                     | x24e10.x1 NCI_CGAP_U14 Homo sapiens cDNA clone IMAGE:2761088 3' similar to SW-RS5_MOUSE P97461 40S RIBOSOMAL PROTEIN S6. ;  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 1872                   | 15016                 |                   | 2.33                 | 2.0E-40                                       | AV731601.1               | EST_HUMAN                     | AV731601 HTF Homo sapiens cDNA clone HTFAZE05 5'  |
| 1888                   | 15130                 | 28233             | 2.8                  | 2.0E-40                                       | 4508188                  | NT                            | Homo sapiens proteasome (prosome, macropath) subunit, alpha type, 7 (PSMA7) mRNA, and translated products |
| 1988                   | 16130                 | 28234             | 2.8                  | 2.0E-40                                       | 4508188                  | NT                            | Homo sapiens proteasome (prosome, macropath) subunit, alpha type, 7 (PSMA7) mRNA, and translated products |
| 2133                   | 15258                 | 28389             | 1.99                 | 2.0E-40                                       | A1968562.1               | EST_HUMAN                     | W80811.x1 NCI_CGAP_GC8 Homo sapiens cDNA clone IMAGE:2514716 3' similar to TR:Q81829 Q81829               |
| 2238                   | 15371                 | 28500             | 2.21                 | 2.0E-40                                       | 5453592                  | NT                            | ZINC FINGER PROTEIN.  |
| 2754                   | 15871                 |                   | 1.66                 | 2.0E-40                                       | BE276932.1               | EST_HUMAN                     | Homo sapiens adenyl cyclase-associated protein 2 (CAP2) mRNA  |
| 3196                   | 16371                 | 28378             | 5.27                 | 2.0E-40                                       | 5453592                  | NT                            | 801121587F1 NIH_MGC_20 Homo sapiens cDNA clone IMAGE:3945784 5'   |
| 5021                   | 18150                 | 31128             | 1.43                 | 2.0E-40                                       | AL163280.2               | NT                            | Homo sapiens adenyl cyclase-associated protein 2 (CAP2) mRNA  |
| 5021                   | 18150                 | 31129             | 1.43                 | 2.0E-40                                       | AL163280.2               | NT                            | Homo sapiens chromosome 21 segment HS21C080   |
| 800                    | 14061                 |                   | 1.2                  | 1.0E-40                                       | AA225689.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C080   |
| 2886                   | 15806                 | 28922             | 1.82                 | 1.0E-40                                       | BF036881.1               | EST_HUMAN                     | nc039a09.s1 NCI_CGAP_P11 Homo sapiens cDNA clone IMAGE:1007608  |
| 2760                   | 15867                 |                   | 3.88                 | 1.0E-40                                       | BE018348.1               | EST_HUMAN                     | 601460375F1 NIH_MGC_68 Homo sapiens cDNA clone IMAGE:3963803 5'   |
| 3370                   | 16542                 |                   | 2.14                 | 1.0E-40                                       | 4507142                  | NT                            | bb79a10.y1 NIH_MGC_10 Homo sapiens cDNA clone IMAGE:3048570 5' similar to TR:Q82168 Q82168                |
| 4733                   | 17868                 | 30851             | 3.69                 | 1.0E-40                                       | 4508012                  | NT                            | SYNTAXIN 17.  |
| 6385                   | 19554                 | 32912             | 0.68                 | 1.0E-40                                       | W92708.1                 | EST_HUMAN                     | Homo sapiens sorting nexin 3 (SNX3) mRNA  |
| 6385                   | 19554                 | 32913             | 0.68                 | 1.0E-40                                       | W92708.1                 | EST_HUMAN                     | Homo sapiens zinc finger protein 200 (ZNF200) mRNA, and translated products                               |
| 7236                   | 20320                 | 33763             | 1.83                 | 1.0E-40                                       | AA573201.1               | EST_HUMAN                     | zh78f11.s1 Soares_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:418317 3'                     |
| 7236                   | 20320                 | 33764             | 1.83                 | 1.0E-40                                       | AA573201.1               | EST_HUMAN                     | zh78f11.s1 Soares_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:418317 3'                     |
| 7381                   | 20459                 | 33922             | 0.82                 | 1.0E-40                                       | P28808                   | SWISSPROT                     | tt42f04.s1 NCI_CGAP_AA1 Homo sapiens cDNA clone IMAGE:985167 3'   |
| 11157                  | 24228                 | 37858             | 8.41                 | 1.0E-40                                       | AU149345.1               | EST_HUMAN                     | tt42f04.s1 NCI_CGAP_AA1 Homo sapiens cDNA clone IMAGE:985167 3'   |
| 11993                  | 24978                 | 38683             | 1.49                 | 1.0E-40                                       | AA614255.1               | EST_HUMAN                     | POL POLYPROTEIN (CONTAINS: PROTEASE; REVERSE TRANSCRIPTASE; RIBONUCLEASE H)                               |
| 11993                  | 24978                 | 38684             | 1.49                 | 1.0E-40                                       | AA614255.1               | EST_HUMAN                     | AU149345 NT2RM4 Homo sapiens cDNA clone NT2RM4002122 3'   |
| 12079                  | 25059                 |                   | 1.88                 | 1.0E-40                                       | AL163246.2               | NT                            | np08f03.s1 NCI_CGAP_P3 Homo sapiens cDNA clone IMAGE:1115881 similar to TR:G1138408                       |
| 1287                   | 29032                 |                   | 6.94                 | 1.0E-40                                       | BF334112.1               | EST_HUMAN                     | G1138408 KIAA0173 PROTEIN.  |
| 3808                   | 17065                 | 30064             | 0.59                 | 9.0E-41                                       | W01698.1                 | EST_HUMAN                     | np08f03.s1 NCI_CGAP_P3 Homo sapiens cDNA clone IMAGE:1115881 similar to TR:G1138408                       |
| 8106                   | 21188                 | 34708             | 1.6                  | 8.0E-41                                       | AL163203.2               | NT                            | Homo sapiens chromosome 21 segment HS21C003   |
| 851                    | 18024                 | 27089             | 2.62                 | 7.0E-41                                       | AL834364.1               | EST_HUMAN                     | wp04f04.x1 NCI_CGAP_Kid11 Homo sapiens cDNA clone IMAGE:2463895 3'  |
| 851                    | 16024                 | 27090             | 2.52                 | 7.0E-41                                       | AL834364.1               | EST_HUMAN                     | wp04f04.x1 NCI_CGAP_Kid11 Homo sapiens cDNA clone IMAGE:2463895 3'  |

Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 6379                   | 19681                 | 31450             | 0.9                  | 7.0E-41                                       | 11545770                 | NT                            | Homo sapiens hypothetical protein FLJ13188 (FLJ13188), mRNA   |
| 6132                   | 16311                 | 32651             | 2.71                 | 7.0E-41                                       | 11418208                 | NT                            | Homo sapiens a disintegrin and metalloproteinase domain 22 (ADAM22), mRNA   |
| 6483                   | 19650                 | 33012             | 1.04                 | 7.0E-41                                       | 11433010                 | NT                            | Homo sapiens KQ motif containing GTPase activating protein 1 (IQGAP1), mRNA   |
| 7133                   | 18559                 | 31473             | 0.96                 | 7.0E-41                                       | UT2335.1                 | NT                            | Human platelet activating factor acetylhydrolase, brain isoform, 45 kDa subunit (LIS1) gene, exons 3 and 4  |
| 11718                  | 24758                 | 38453             | 2.06                 | 7.0E-41                                       | 4758445                  | NT                            | Homo sapiens guanine nucleotide binding protein 10 (GNG10) mRNA   |
| 11831                  | 24917                 | 38620             | 1.41                 | 7.0E-41                                       | AF223391.1               | NT                            | Homo sapiens calcium channel alpha1E subunit (CACNA1E) gene, exons 7-49, and partial cds, alternatively spliced   |
| 13182                  | 26028                 |                   | 8.58                 | 7.0E-41                                       | 11417972                 | NT                            | Homo sapiens pascadillo (zebrafish) homolog 1, containing BRCT domain (PES1), mRNA  |
| 291                    | 13508                 | 26543             | 1.13                 | 8.0E-41                                       | AB037183.1               | NT                            | Homo sapiens DSCR5b mRNA, complete cds  |
| 2179                   | 15314                 | 28443             | 3.09                 | 8.0E-41                                       | 7657042                  | NT                            | Homo sapiens Down syndrome candidate region 1 (DSCR1), mRNA   |
| 8158                   | 21240                 | 34760             | 1.31                 | 8.0E-41                                       | BF513783.1               | EST_HUMAN                     | UHH-BW1-amp-b-03-0-JL51 NCL CGAP_Sub7 Homo sapiens cDNA clone IMAGE:3070421 3'  |
| 13158                  | 25952                 |                   | 1.25                 | 8.0E-41                                       | AW873637.1               | EST_HUMAN                     | hca498.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:3042183 3' similar to contains MER32.B3 MER32 repetitive element;   |
| 1845                   | 14981                 | 28082             | 1.37                 | 5.0E-41                                       | T62628.1                 | EST_HUMAN                     | yc03e10.s1 Stratogene lung (#837210) Homo sapiens cDNA clone IMAGE:76826 3'   |
| 4223                   | 17371                 |                   | 1.17                 | 5.0E-41                                       | 4885636                  | EST                           | Homo sapiens target of myb1 (chicken) homolog (TOM1), mRNA  |
| 6878                   | 19837                 |                   | 2.34                 | 5.0E-41                                       | BE087042.1               | EST_HUMAN                     | PM4-BT0341-251199-002-F11 BT0341 Homo sapiens cDNA  |
| 402                    | 13699                 |                   | 1.69                 | 4.0E-41                                       | BE158318.1               | EST_HUMAN                     | QV0-HT0367-150200-114-g09 HT0367 Homo sapiens cDNA  |
| 1122                   | 14287                 | 27342             | 2.37                 | 4.0E-41                                       | AU118344.1               | EST_HUMAN                     | AU118344 HEMBA1 Homo sapiens cDNA clone HEMBA1005683 5'   |
| 1442                   | 14595                 | 27870             | 14.6                 | 4.0E-41                                       | A027117.1                | EST_HUMAN                     | aw45e08.s1 Soares_papillary_tumor_NbHPA Homo sapiens cDNA clone IMAGE:1649784 3' similar to TR:O00597 O00697 CYTOCHROME C-LIKE POLYPEPTIDE; contains LTR5.b1 LTR5 repetitive element; |
| 1442                   | 14595                 | 27671             | 14.6                 | 4.0E-41                                       | A027117.1                | EST_HUMAN                     | aw45e08.s1 Soares_papillary_tumor_NbHPA Homo sapiens cDNA clone IMAGE:1649784 3' similar to TR:O00597 O00697 CYTOCHROME C-LIKE POLYPEPTIDE; contains LTR5.b1 LTR5 repetitive element; |
| 1454                   | 14607                 | 27687             | 3.34                 | 4.0E-41                                       | AB009881.1               | NT                            | Homo sapiens gene for activin receptor type IIB, complete cds   |
| 1685                   | 14817                 | 27900             | 7.72                 | 4.0E-41                                       | A1500408.1               | EST_HUMAN                     | hm68e04.x1 NCL CGAP_Birt28 Homo sapiens cDNA clone IMAGE:2165958 3' similar to contains OFR.b1 OFR repetitive element;  |
| 2953                   | 16130                 | 29144             | 5.02                 | 4.0E-41                                       | AJ228041.1               | NT                            | Homo sapiens 659 kb contig between AML1 and CBR1 on chromosome 21q22, segment 1/3   |
| 2953                   | 16130                 | 29146             | 5.02                 | 4.0E-41                                       | AJ228041.1               | NT                            | Homo sapiens 659 kb contig between AML1 and CBR1 on chromosome 21q22, segment 1/3   |
| 4262                   | 17407                 | 30393             | 2.13                 | 4.0E-41                                       | X92885.1                 | NT                            | H.sapiens DNase I hypersensitive site (HSS-3) enhancer element  |
| 6838                   | 19797                 |                   | 1.8                  | 4.0E-41                                       | AV758295.1               | EST_HUMAN                     | AV758295 B1M Homo sapiens cDNA clone BMFBHC06 5'  |
| 8895                   | 22835                 | 36519             | 5.06                 | 4.0E-41                                       | BF304883.1               | EST_HUMAN                     | 601888088F1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:4122119 5'   |
| 11969                  | 24954                 |                   | 7.38                 | 4.0E-41                                       | AV710480.1               | EST_HUMAN                     | AV710480 Cu Homo sapiens cDNA clone CuAAC007 5'   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO. | Exon<br>SEQ ID<br>NO. | ORF SEQ<br>ID NO. | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 12900                  | 25917                 |                   | 1.3                  | 4.0E-41                                       | AV708431.1               | EST_HUMAN                     | AV708431 ADC Homo sapiens cDNA clone ADCARE02 5'   |
| 13110                  | 25725                 | 31942             | 1.61                 | 4.0E-41                                       | BE88718.1                | EST_HUMAN                     | G01508315F1 NIH_MGC_71 Homo sapiens cDNA clone IMAGE:3910059 5'  |
| 970                    | 14143                 | 27203             | 1.3                  | 3.0E-41                                       | AB030176.1               | NT                            | Homo sapiens PAD-H19 mRNA for peptidylarginine deiminase type II, complete cds                         |
| 4455                   | 17595                 | 30575             | 4.03                 | 3.0E-41                                       | AB028898.1               | NT                            | Homo sapiens DNA, DLEC1 to ORCTL4 gene region, section 1/2 (DLEC1, ORCTL3, ORCTL4 genes, complete cds) |
| 6609                   | 18804                 | 31869             | 11.78                | 3.0E-41                                       | X87689.1                 | NT                            | H. sapiens mRNA for putative p64 CLCP protein  |
| 6511                   | 19676                 | 33048             | 1.23                 | 3.0E-41                                       | AB037808.1               | NT                            | Homo sapiens mRNA for KIAA1387 protein, partial cds  |
| 7987                   | 21017                 | 34329             | 0.71                 | 3.0E-41                                       | R54765.1                 | EST_HUMAN                     | Y75508.r1 Soares breast 2NtHBst Homo sapiens cDNA clone IMAGE:164576 5'                                |
| 12118                  | 26099                 | 38804             | 1.38                 | 3.0E-41                                       | AW694941.1               | EST_HUMAN                     | QV0-BN0040-170300-160-108 BN0040 Homo sapiens cDNA   |
| 12119                  | 26099                 | 38805             | 1.38                 | 3.0E-41                                       | AW694941.1               | EST_HUMAN                     | QV0-BN0040-170300-160-108 BN0040 Homo sapiens cDNA   |
| 12185                  | 25153                 |                   | 1.98                 | 3.0E-41                                       | AA609768.1               | EST_HUMAN                     | af17710.s1 Soares testis NHT Homo sapiens cDNA clone IMAGE:1031947 3'                                  |
| 12783                  | 25525                 |                   | 1.43                 | 3.0E-41                                       | BF125922.1               | EST_HUMAN                     | G01762840F1 NIH_MGC_20 Homo sapiens cDNA clone IMAGE:4026081 5'  |
| 1871                   | 14744                 | 27827             | 31.25                | 2.0E-41                                       | U43701.1                 | NT                            | Human ribosomal protein L23a mRNA, complete cds  |
| 2013                   | 15153                 | 28258             | 2.17                 | 2.0E-41                                       | AA331940.1               | EST_HUMAN                     | EST35818 Embryo, 8 week 1 Homo sapiens cDNA 5' end   |
| 2293                   | 15425                 | 28359             | 1.26                 | 2.0E-41                                       | D86882.1                 | NT                            | Human mRNA for KIAA0207 gene, complete cds   |
| 2341                   | 16472                 | 28606             | 5.52                 | 2.0E-41                                       | X89631.1                 | NT                            | G.gorilla DNA for ZNF80 gene homolog   |
| 2889                   | 14744                 | 27827             | 11.99                | 2.0E-41                                       | U43701.1                 | NT                            | Human ribosomal protein L23a mRNA, complete cds  |
| 3406                   | 16576                 | 29591             | 0.69                 | 2.0E-41                                       | AA448549.1               | EST_HUMAN                     | z08604.r1 Soares fetal N22HF8_9w Homo sapiens cDNA clone IMAGE:788839 5'                               |
| 3941                   | 17100                 | 30097             | 0.69                 | 2.0E-41                                       | 5032108                  | NT                            | Homo sapiens son of sevenless (Drosophila) homolog 1 (SOS1) mRNA                                       |
| 4744                   | 17879                 | 30862             | 1.23                 | 2.0E-41                                       | AL163267.2               | NT                            | Homo sapiens chromosome 21 segment HS21C067  |
| 4744                   | 17878                 | 30863             | 1.23                 | 2.0E-41                                       | AL163267.2               | NT                            | Homo sapiens chromosome 21 segment HS21C067  |
| 5856                   | 18850                 | 32132             | 0.6                  | 2.0E-41                                       | AA594575.1               | EST_HUMAN                     | nc02c07.s1 NCL_CGAP_Phe1 Homo sapiens cDNA clone IMAGE:1100460 3' similar to gb:X52851_mn1             |
| 6763                   | 19919                 | 33314             | 0.98                 | 2.0E-41                                       | 4504778                  | NT                            | PEPTIDYL-PROLYL CIS-TRANS ISOMERASE A (HUMAN);   |
| 7850                   | 20905                 | 34409             | 9.27                 | 2.0E-41                                       | AF038404.1               | NT                            | Homo sapiens integrin, beta 8 (ITGB8) mRNA   |
| 8269                   | 21341                 | 34858             | 1.38                 | 2.0E-41                                       | M66944.1                 | NT                            | Homo sapiens homolog of Nedd5 (Nedd5) mRNA, complete cds   |
| 8269                   | 21341                 | 34859             | 1.38                 | 2.0E-41                                       | M66944.1                 | NT                            | Human B-cell specific transcription factor (BSAP) mRNA, complete cds                                   |
| 8269                   | 21341                 | 34859             | 1.38                 | 2.0E-41                                       | M66944.1                 | NT                            | Human B-cell specific transcription factor (BSAP) mRNA, complete cds                                   |
| 8269                   | 21370                 | 34891             | 1.42                 | 2.0E-41                                       | AA328265.1               | EST_HUMAN                     | EST31723 Embryo, 12 week 1 Homo sapiens cDNA 5' end  |
| 9175                   | 22263                 | 35798             | 1.65                 | 2.0E-41                                       | P52742                   | SWISSPROT                     | ZINC FINGER PROTEIN 135  |
| 9817                   | 22672                 | 36241             | 0.68                 | 2.0E-41                                       | 11417118                 | NT                            | Homo sapiens KIAA0433 protein (KIAA0433), mRNA   |
| 9817                   | 22672                 | 36242             | 0.56                 | 2.0E-41                                       | 11417118                 | NT                            | Homo sapiens KIAA0433 protein (KIAA0433), mRNA   |
| 11775                  | 24767                 | 38463             | 2.87                 | 2.0E-41                                       | AA372637.1               | EST_HUMAN                     | EST84555 Colon adenocarcinoma IV Homo sapiens cDNA 5' end  |
| 13148                  | 25747                 |                   | 1.2                  | 2.0E-41                                       | 11420516                 | NT                            | Homo sapiens nuclear factor of activated T-cells, cytoplasmic 2 (NFATC2), mRNA                         |
| 3278                   | 18460                 | 29470             | 1.05                 | 1.0E-41                                       | BE869735.1               | EST_HUMAN                     | G01445647F1 NIH_MGC_65 Homo sapiens cDNA clone IMAGE:3849803 5'  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 3276                   | 16450                 | 29471             | 1.05                 | 1.0E-41                                       | BE868735.1               | EST_HUMAN                     | 501445647F1 NIH_MGC_65 Homo sapiens cDNA clone IMAGE:3849803 5'   |
| 4689                   | 17624                 | 30811             | 9.46                 | 1.0E-41                                       | 6878468                  | NT                            | Mus musculus tubulin alpha 6 (Tuba6), mRNA  |
| 9618                   | 22673                 | 36243             | 1.57                 | 1.0E-41                                       | AI217668.1               | EST_HUMAN                     | qf75c10.x1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:1765858 3'   |
| 12334                  | 25241                 |                   | 1.67                 | 1.0E-41                                       | 11528291                 | NT                            | Homo sapiens hypothetical protein FLJ20454 (FLJ20454), mRNA   |
| 8717                   | 21787                 |                   | 1.19                 | 9.0E-42                                       | BE179191.1               | EST_HUMAN                     | RC0-H10613-210300-032-g01 HT0613 Homo sapiens cDNA  |
| 9375                   | 22450                 | 36011             | 2.81                 | 9.0E-42                                       | 11560151                 | NT                            | Homo sapiens hypothetical C2H2 zinc finger protein FLJ22504 (FLJ22504), mRNA  |
| 9375                   | 22450                 | 36012             | 2.81                 | 9.0E-42                                       | 11560151                 | NT                            | Homo sapiens hypothetical C2H2 zinc finger protein FLJ22504 (FLJ22504), mRNA  |
| 475                    | 13670                 | 28702             | 5.34                 | 8.0E-42                                       | AF003630.1               | NT                            | Homo sapiens homeobox protein CDX4 (CDX4) gene, complete cds and flanking repeat regions                                  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens DNA, DLEC1 to ORCTL4 gene region, section 1/2 (DLEC1, ORCTL3, ORCTL4 genes, complete cds)                    |
| 2178                   | 15311                 | 28439             | 8.63                 | 8.0E-42                                       | AB026898.1               | NT                            | h07c02.61 NCI_CGAP_Thy1 Homo sapiens cDNA clone IMAGE:943588 similar to TR:G434304 G434304                                |
| 12375                  | 28035                 |                   | 30.09                | 8.0E-42                                       | AA469896.1               | EST_HUMAN                     | 367BP EXPRESSED SEQUENCE TAG MRNA:  |
|                        |                       |                   |                      |   |                          |                               | xc97a04.x1 NCI_CGAP_Brn35 Homo sapiens cDNA clone IMAGE:2692174 3' similar to contains ORF.2                              |
| 12396                  | 25904                 |                   | 2.91                 | 8.0E-42                                       | AW088062.1               | EST_HUMAN                     | ORF repetitive element:   |
| 955                    | 14128                 |                   | 2.23                 | 7.0E-42                                       | AL163285.2               | NT                            | Homo sapiens chromosome 21 segment HS21C085   |
| 8688                   | 21746                 |                   | 0.5                  | 7.0E-42                                       | R10963.1                 | EST_HUMAN                     | Y08904.J1 Soares fetal liver spleen 1NLS Homo sapiens cDNA clone IMAGE:129174 5'  |
| 9445                   | 22561                 | 36124             | 1.32                 | 7.0E-42                                       | AI204568.1               | EST_HUMAN                     | qf58g12.x1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:1754278 3'   |
| 1903                   | 15046                 | 28155             | 3.24                 | 6.0E-42                                       | AF012872.1               | NT                            | Homo sapiens phosphatidylinositol 4-kinase 230 (p4K230) mRNA, complete cds  |
| 1903                   | 15046                 | 28156             | 3.24                 | 6.0E-42                                       | AF012872.1               | NT                            | Homo sapiens phosphatidylinositol 4-kinase 230 (p4K230) mRNA, complete cds  |
|                        |                       |                   |                      |   |                          |                               | h07c02.61 NCI_CGAP_HN10 Homo sapiens cDNA clone IMAGE:2741788 3' similar to contains L1.L1                                |
|                        |                       |                   |                      |   |                          |                               | repetitive element:   |
| 2363                   | 15494                 |                   | 3.6                  | 6.0E-42                                       | AW238658.1               | EST_HUMAN                     |   |
| 5584                   | 18779                 | 31824             | 1.55                 | 6.0E-42                                       | AB026890.1               | NT                            | Homo sapiens mRNA for KIAA1067 protein, partial cds   |
| 5834                   | 18779                 | 31824             | 1.5                  | 6.0E-42                                       | AB026890.1               | NT                            | Homo sapiens mRNA for KIAA1067 protein, partial cds   |
| 138                    | 13364                 |                   | 6.34                 | 6.0E-42                                       | AJ271735.1               | NT                            | Homo sapiens Xq pseudautosomal region; segment 1/2  |
| 451                    | 13847                 | 26883             | 1.56                 | 5.0E-42                                       | BE217913.1               | EST_HUMAN                     | h031e11.x1 NCI_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3175052 3'   |
| 499                    | 13694                 |                   | 3.05                 | 6.0E-42                                       | 5730038                  | NT                            | Homo sapiens SET domain and mariner transposase fusion gene (SETMAR) mRNA   |
| 500                    | 13695                 |                   | 1.14                 | 5.0E-42                                       | 5730038                  | NT                            | Homo sapiens SET domain and mariner transposase fusion gene (SETMAR) mRNA   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens ubiquitin protein ligase E3A (human papilloma virus E6-associated protein, Angelman syndrome) (UBES3A), mRNA |
| 6825                   | 19878                 | 33385             | 0.94                 | 5.0E-42                                       | 11433063                 | NT                            | Homo sapiens ubiquitin protein ligase E3A (human papilloma virus E6-associated protein, Angelman syndrome) (UBES3A), mRNA |
| 6825                   | 19878                 | 33389             | 0.94                 | 5.0E-42                                       | 11433063                 | NT                            | Homo sapiens myotubularin related protein 3 (MTMR3), mRNA   |
| 6941                   | 20254                 | 33691             | 2.57                 | 5.0E-42                                       | 11417857                 | NT                            | Homo sapiens multifunctional catenin/cadherin-dependent protein kinase II delta2 isoform mRNA, complete cds               |
| 7351                   | 20430                 | 33892             | 1.55                 | 5.0E-42                                       | AF071589.1               | NT                            |   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 8878                   | 22057                 | 35589             | 2.88                 | 5.0E-42                                       | AB037715.1               | NT                            | Homo sapiens mRNA for KIAA1294 protein, partial cds  |
| 10832                  | 23865                 | 37487             | 0.55                 | 5.0E-42                                       | 11431168                 | NT                            | Homo sapiens 3-hydroxyanthranilate 3,4-dioxygenase (HAAO), mRNA  |
| 10832                  | 23865                 | 37488             | 0.55                 | 5.0E-42                                       | 11431168                 | NT                            | Homo sapiens 3-hydroxyanthranilate 3,4-dioxygenase (HAAO), mRNA  |
| 11246                  | 24316                 | 37855             | 1.77                 | 6.0E-42                                       | 8923162                  | NT                            | Homo sapiens hypothetical protein FLJ20163 (FLJ20163), mRNA  |
| 772                    | 13953                 | 27002             | 5.6                  | 4.0E-42                                       | AF055088.1               | NT                            | Homo sapiens MHC class 1 region  |
| 772                    | 13953                 | 27003             | 5.6                  | 4.0E-42                                       | AF055088.1               | NT                            | Homo sapiens MHC class 1 region  |
| 1091                   | 14256                 | 27312             | 1.82                 | 4.0E-42                                       | AF188011.1               | NT                            | Homo sapiens ribonuclease III (RN3) mRNA, complete cds   |
| 4311                   | 17454                 | 30442             | 1.39                 | 4.0E-42                                       | X59417.1                 | NT                            | H. sapiens PROS-27 mRNA  |
| 4343                   | 17486                 | 30469             | 1.1                  | 4.0E-42                                       | AF246219.1               | NT                            | Homo sapiens SNARE protein kinase SNAK mRNA, complete cds  |
| 4344                   | 17507                 | 30488             | 4.67                 | 4.0E-42                                       | 4506498                  | NT                            | Homo sapiens regulatory factor X, 4 (influences HLA class II expression) (RF4) mRNA  |
| 4706                   | 17941                 | 30825             | 17.04                | 4.0E-42                                       | 4508008                  | NT                            | Homo sapiens zinc finger protein 177 (ZNF177) mRNA   |
| 5285                   | 18404                 | 31372             | 0.93                 | 4.0E-42                                       | 7661635                  | NT                            | Homo sapiens DKFZP584O2082 protein (DKFZP584O2082), mRNA   |
| 10701                  | 23734                 | 37339             | 0.57                 | 4.0E-42                                       | AW371201.1               | EST_HUMAN                     | CNO-BT0282-171289-127-403 BT0282 Homo sapiens cDNA   |
| 10884                  | 23968                 | 37697             | 2.32                 | 4.0E-42                                       | AW818830.1               | EST_HUMAN                     | RC1-ST0278-040400-018-111 ST0278 Homo sapiens cDNA   |
| 10884                  | 23968                 | 37598             | 2.32                 | 4.0E-42                                       | AW818830.1               | EST_HUMAN                     | RC1-ST0278-040400-018-111 ST0278 Homo sapiens cDNA   |
| 11240                  | 24309                 | 37946             | 1.43                 | 4.0E-42                                       | AK45225.1                | EST_HUMAN                     | h11402.x1 NCL_CGAP_Part1 Homo sapiens cDNA clone IMAGE:2130147 3'  |
| 11688                  | 24885                 | 38387             | 1.69                 | 4.0E-42                                       | BF035327.1               | EST_HUMAN                     | h11402.x1 NCL_CGAP_Part1 Homo sapiens cDNA clone IMAGE:2130147 3'  |
| 1512                   | 14885                 | 27750             | 3.78                 | 2.0E-42                                       | BF376834.1               | EST_HUMAN                     | 601468631F1 NIH_MGC_66 Homo sapiens cDNA clone IMAGE:3862086 5'  |
| 2466                   | 16593                 | 28718             | 1.6                  | 2.0E-42                                       | AV690218.1               | EST_HUMAN                     | RCO-TN0079-110900-024-g07 TN0079 Homo sapiens cDNA   |
| 2483                   | 15910                 |                   | 4.24                 | 2.0E-42                                       | AW693344.1               | EST_HUMAN                     | AV690218 GKG Homo sapiens cDNA clone CHGCBB08 5'   |
| 2496                   | 15923                 | 28742             | 3.6                  | 2.0E-42                                       | AW250059.1               | EST_HUMAN                     | RC3-NN0070-270400-011-h10 NN0070 Homo sapiens cDNA   |
| 5875                   | 19065                 | 32372             | 11.82                | 2.0E-42                                       | AW955368.1               | EST_HUMAN                     | 2819293.3prime NIH_MGC_7 Homo sapiens cDNA clone IMAGE:2819293 3'  |
| 5875                   | 19065                 | 32373             | 11.82                | 2.0E-42                                       | AW955368.1               | EST_HUMAN                     | EST387488 MAGE resequencing, MAGEC Homo sapiens cDNA   |
| 6892                   | 20044                 | 33452             | 0.9                  | 2.0E-42                                       | AK052586.1               | EST_HUMAN                     | EST387488 MAGE resequencing, MAGEC Homo sapiens cDNA   |
| 10048                  | 23084                 | 36685             | 1.28                 | 2.0E-42                                       | BE538918.1               | EST_HUMAN                     | ow63605.x1 Soares_fetal_liver_epiten_1NFLS_S1 Homo sapiens cDNA clone IMAGE:1663417 3'   |
| 10260                  | 23285                 | 36892             | 0.64                 | 2.0E-42                                       | P81649                   | SWISSPROT                     | 801061284F1 NIH_MGC_10 Homo sapiens cDNA clone IMAGE:3447620 5'  |
| 10260                  | 23285                 | 36893             | 0.64                 | 2.0E-42                                       | P81649                   | SWISSPROT                     | RIBONUCLEASE K3 (RNASE K3)   |
| 12037                  | 25019                 | 38723             | 1.53                 | 2.0E-42                                       | AL163246.2               | NT                            | RIBONUCLEASE K3 (RNASE K3)   |
| 762                    | 13632                 | 26977             | 1.75                 | 1.0E-42                                       | X57147.1                 | NT                            | Homo sapiens chromosome 21 segment HS21C046  |
| 1067                   | 14233                 | 27292             | 2.2                  | 1.0E-42                                       | AW295809.1               | EST_HUMAN                     | Human endogenous retrovirus pT.E.1 (ERV9)  |
| 1125                   | 14290                 | 27345             | 1.74                 | 1.0E-42                                       | AJ251818.1               | NT                            | U1H-B1-aff-e-04-0-U1.st NCL_CGAP_Sub3 Homo sapiens cDNA clone IMAGE:2721871 3'   |
| 1125                   | 14290                 | 27346             | 1.74                 | 1.0E-42                                       | AJ251818.1               | NT                            | Homo sapiens partial C9 gene for complement component C9, exon 1   |
| 1271                   | 18033                 | 27486             | 11.99                | 1.0E-42                                       | AF087166.1               | NT                            | Homo sapiens NADH-ubiquinone oxidoreductase AGGG subunit precursor homodog mRNA, nuclear gene encoding mitochondrial protein, complete cds |



Page 294 of 550

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 1271                   | 18033                 | 27499             | 11.99                | 1.0E-42                                       | AF067188.1               | NT                            | Homo sapiens NADH-ubiquinone oxidoreductase AGGG subunit precursor homolog mRNA, nuclear gene encoding mitochondrial protein, complete cds |
| 1735                   | 14884                 | 27977             | 1.15                 | 1.0E-42                                       | 11423219                 | NT                            | Homo sapiens nec (LOC51201), mRNA  |
| 2087                   | 15227                 | 28349             | 1.18                 | 1.0E-42                                       | AF110298.1               | NT                            | Homo sapiens PDNP1 gene, exon 17   |
| 2809                   | 15733                 | 28849             | 1.42                 | 1.0E-42                                       | 5174468                  | NT                            | Homo sapiens major histocompatibility complex, class II, DM alpha (HLA-DMA) mRNA   |
| 3029                   | 16205                 | 29228             | 9.15                 | 1.0E-42                                       | 4505524                  | NT                            | Homo sapiens origin recognition complex, subunit 5 (yeast homolog)-like (ORCSL) mRNA, and translated products                              |
| 3789                   | 16960                 | 29964             | 3.31                 | 1.0E-42                                       | 7682027                  | NT                            | Homo sapiens KIAA0255 gene product (KIAA0255), mRNA  |
| 3895                   | 17054                 | 30064             | 1.11                 | 1.0E-42                                       | 5031610                  | NT                            | Homo sapiens Golgi vesicular membrane trafficking protein p18 (BET1) mRNA  |
| 4038                   | 17182                 | 30202             | 0.99                 | 1.0E-42                                       | AL163287.2               | NT                            | Homo sapiens chromosome 21 segment HS21C087  |
| 4361                   | 17504                 | 30486             | 3.47                 | 1.0E-42                                       | AL163280.2               | NT                            | Homo sapiens chromosome 21 segment HS21C080  |
| 4716                   | 17851                 | 30834             | 0.91                 | 1.0E-42                                       | AW813617.1               | EST_HUMAN                     | RC3-ST0197-161099-012-003 ST0197 Homo sapiens cDNA   |
| 4867                   | 18000                 | 30984             | 2.37                 | 1.0E-42                                       | 5903122                  | NT                            | Homo sapiens proteasome inhibitor (PI31), mRNA   |
| 4867                   | 18000                 | 30984             | 2.37                 | 1.0E-42                                       | 5903122                  | NT                            | Homo sapiens proteasome inhibitor (PI31), mRNA   |
| 4801                   | 18031                 | 31020             | 6.13                 | 1.0E-42                                       | 4506768                  | NT                            | Homo sapiens tyrosine receptor 3 (RYR3) mRNA   |
| 11440                  | 24501                 | 38189             | 1.39                 | 1.0E-42                                       | BE408811.1               | EST_HUMAN                     | 601304125F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3638310 5'  |
| 10291                  | 23326                 | 36929             | 8.16                 | 8.0E-43                                       | 4757689                  | NT                            | Homo sapiens chromodomain protein, Y chromosome-like (CDYL) mRNA   |
| 669                    | 13855                 | 26883             | 20.77                | 8.0E-43                                       | AV736824.1               | EST_HUMAN                     | Homo sapiens chromodomain protein, Y chromosome-like (CDYL) mRNA   |
| 669                    | 13855                 | 26884             | 20.77                | 8.0E-43                                       | AV736824.1               | EST_HUMAN                     | Homo sapiens chromodomain protein, Y chromosome-like (CDYL) mRNA   |
| 718                    | 13900                 | 26938             | 5.12                 | 8.0E-43                                       | 8923278                  | NT                            | Homo sapiens hypothetical protein FLJ20297 (FLJ20297), mRNA  |
| 718                    | 13900                 | 26939             | 5.12                 | 8.0E-43                                       | 8923278                  | NT                            | Homo sapiens hypothetical protein FLJ20297 (FLJ20297), mRNA  |
| 718                    | 13900                 | 26940             | 5.12                 | 8.0E-43                                       | 8923278                  | NT                            | Homo sapiens hypothetical protein FLJ20297 (FLJ20297), mRNA  |
| 5816                   | 19008                 | 32312             | 0.72                 | 8.0E-43                                       | H13952.1                 | EST_HUMAN                     | y08e11.1 Soares placenta Nb2HP Homo sapiens cDNA clone IMAGE:148172 5'   |
| 3731                   | 16892                 | 29896             | 7.48                 | 7.0E-43                                       | AW246442.1               | EST_HUMAN                     | 2822251.5prime NIH_MGC_7 Homo sapiens cDNA clone IMAGE:2822251 5'  |
| 8988                   | 22047                 |                   | 3.98                 | 7.0E-43                                       | AI936748.1               | EST_HUMAN                     | w08601.x1 NCI_CGAP_Bm25 Homo sapiens cDNA clone IMAGE:2468865 3' similar to TRO15475   |
| 1374                   | 14529                 |                   | 11.82                | 6.0E-43                                       | AA491890.1               | EST_HUMAN                     | O16475 UNNAMED HERV-H PROTEIN contains LTR7.b1 LTR7 repetitive element;  |
| 2657                   | 15780                 |                   | 4.03                 | 6.0E-43                                       | AV708201.1               | EST_HUMAN                     | me72008.s1 NCI_CGAP_Ew1 Homo sapiens cDNA clone IMAGE:308803 similar to gb-L05085 80S  |
| 4993                   | 18092                 | 31068             | 252.27               | 6.0E-43                                       | AI421540.1               | EST_HUMAN                     | RIBOSOMAL PROTEIN L30 (HUMAN);   |
| 6441                   | 18608                 | 32971             | 2.63                 | 6.0E-43                                       | 9955973                  | NT                            | AV708201 ADC Homo sapiens cDNA clone ADCACC10 5'   |
|                        |                       |                   |                      |   |                          |                               | tt2804.x1 NCI_CGAP_Bm23 Homo sapiens cDNA clone IMAGE:2097318 3' similar to SW-BRR2_YEAST  |
|                        |                       |                   |                      |   |                          |                               | P32639 PRE-MRNA SPLICING HELICASE BRR2;  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens ATP-binding cassette, sub-family C (CFTR/MRP), member 3 (ABCC3), transcript variant MRP-3B, mRNA                              |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 7048                   | 20101                 | 38518             | 1.8                  | 6.0E-43                                       | AW488897.1               | EST_HUMAN                     | h48b04.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2810881 3' similar to contains<br>MER1.13 MER1 MER1 repetitive element; |
| 10056                  | 23094                 | 38098             | 1.77                 | 6.0E-43                                       | AA195164.1               | EST_HUMAN                     | z435a08.r1 Soares_NHL-MIPu_S1 Homo sapiens cDNA clone IMAGE:005410 5' similar to TR:G528641   |
| 11383                  | 24624                 |                   | 2.45                 | 6.0E-43                                       | AL119153.1               | EST_HUMAN                     | G52864.1 DB1, COMPLETE CDS; contains element PTR7 repetitive element;   |
| 145                    | 13370                 |                   | 1.82                 | 6.0E-43                                       | AL163213.2               | NT                            | DKFZp781L1712.1 1781 (synonym: hamy2) Homo sapiens cDNA clone DKFZp781L1712 5'  |
| 515                    | 13709                 | 28738             | 3.4                  | 6.0E-43                                       | AA382780.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C013   |
| 2808                   | 18086                 | 28100             | 1.99                 | 5.0E-43                                       | AV732578.1               | EST_HUMAN                     | EST186033 Testis 1 Homo sapiens cDNA 5' end   |
| 6435                   | 20098                 | 33512             | 0.9                  | 6.0E-43                                       | AI613508.1               | EST_HUMAN                     | AV732578 HTF Homo sapiens cDNA clone HTFANC08 5'  |
| 7043                   | 20096                 | 33512             | 0.89                 | 6.0E-43                                       | AI613509.1               | EST_HUMAN                     | hw22a07.x1 NCI_CGAP_Bm52 Homo sapiens cDNA clone IMAGE:2280452 3'   |
| 8381                   | 21452                 | 34985             | 0.84                 | 5.0E-43                                       | AA442271.1               | EST_HUMAN                     | hw22a07.x1 NCI_CGAP_Bm52 Homo sapiens cDNA clone IMAGE:2280452 3'   |
| 8381                   | 21452                 | 34986             | 0.84                 | 5.0E-43                                       | AA442271.1               | EST_HUMAN                     | z464a03.r1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:757420 5'  |
| 9080                   | 22189                 |                   | 0.73                 | 5.0E-43                                       | H74277.1                 | EST_HUMAN                     | z464a03.r1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:757420 5'  |
| 9594                   | 22708                 | 38272             | 4.09                 | 5.0E-43                                       | AA465288.1               | EST_HUMAN                     | y449g12.r1 Soares fetal liver spleen 1N1LS Homo sapiens cDNA clone IMAGE:228610 5'  |
| 10608                  | 23643                 | 37251             | 2.8                  | 5.0E-43                                       | AI733244.1               | EST_HUMAN                     | ss33a03.r1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:815055 5'  |
| 10651                  | 23685                 | 37285             | 1.02                 | 5.0E-43                                       | AL049110.1               | EST_HUMAN                     | ss33a03.r1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:815055 5'  |
| 11001                  | 24080                 | 37715             | 4.53                 | 5.0E-43                                       | AW863007.1               | EST_HUMAN                     | ss33a03.r1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:815055 5'  |
| 11213                  | 24282                 | 37821             | 2.24                 | 5.0E-43                                       | W29011.1                 | EST_HUMAN                     | ss33a03.r1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:815055 5'  |
| 886                    | 15987                 | 27227             | 4.4                  | 4.0E-43                                       | AF003528.1               | NT                            | ss33a03.r1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:815055 5'  |
| 5373                   | 18576                 | 31444             | 1.09                 | 4.0E-43                                       | AI050338.1               | EST_HUMAN                     | ss33a03.r1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:815055 5'  |
| 6489                   | 18665                 | 33028             | 0.68                 | 4.0E-43                                       | 6998009                  | NT                            | ss33a03.r1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:815055 5'  |
| 7280                   | 20363                 |                   | 1.8                  | 4.0E-43                                       | 11418783                 | NT                            | ss33a03.r1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:815055 5'  |
| 8371                   | 21482                 | 34976             | 5.18                 | 4.0E-43                                       | AI244341.1               | EST_HUMAN                     | ss33a03.r1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:815055 5'  |
| 8371                   | 21452                 | 34976             | 5.18                 | 4.0E-43                                       | AI244341.1               | EST_HUMAN                     | ss33a03.r1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:815055 5'  |
| 10521                  | 23556                 | 37184             | 1.02                 | 4.0E-43                                       | 6005967                  | NT                            | ss33a03.r1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:815055 5'  |
| 12311                  | 25227                 |                   | 2.7                  | 4.0E-43                                       | R20650.1                 | EST_HUMAN                     | ss33a03.r1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:815055 5'  |
| 13030                  | 25898                 |                   | 1.33                 | 4.0E-43                                       | AI436093.1               | EST_HUMAN                     | ss33a03.r1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:815055 5'  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 1240                   | 14399                 |                   | 3.46                 | 3.0E-43                                       | AF223391.1               | NT                            | Homo sapiens calcium channel alpha1E subunit (CACNA1E) gene, exons 7-49, and partial cds, alternatively spliced                   |
| 1730                   | 14880                 | 27971             | 2.62                 | 3.0E-43                                       | X07669.1                 | NT                            | H. sapiens gene encoding La subunit   |
| 2120                   | 16065                 | 28377             | 1.1                  | 3.0E-43                                       | R83422.1                 | EST_HUMAN                     | yp82f01.1 Soares fetal liver spleen 1NFUS Homo sapiens cDNA clone IMAGE:193948 5' similar to contains MSR1 repetitive element;    |
| 3682                   | 16825                 | 28834             | 1.22                 | 3.0E-43                                       | S69002.1                 | NT                            | AML1-EVI-1-AML1-EVI-1 fusion protein (rearranged translocation) [human, leukemic cell line SKHL, mRNA Mutant, 5838 nt]            |
| 4405                   | 17548                 | 30532             | 0.9                  | 3.0E-43                                       | AA548154.1               | EST_HUMAN                     | h155d06.s1 NCI_CGAP_P7 Homo sapiens cDNA clone IMAGE:1017419  |
| 6014                   | 19198                 | 32515             | 0.94                 | 3.0E-43                                       | D34813.1                 | NT                            | Human TBXAS1 gene for thromboxane synthase, promoter region and exon 1  |
| 6487                   | 19654                 | 33016             | 1.56                 | 3.0E-43                                       | 7305360                  | NT                            | Mus musculus otogelin (Otog), mRNA  |
| - 6487                 | 19654                 | 33017             | 1.56                 | 3.0E-43                                       | 7305360                  | NT                            | Mus musculus otogelin (Otog), mRNA  |
| 6867                   | 20019                 | 33428             | 5.09                 | 3.0E-43                                       | U85487.1                 | NT                            | Human ribosomal RNA upstream binding transcription factor (UBTF) gene, partial cds  |
| 8357                   | 21438                 |                   | 4.39                 | 3.0E-43                                       | AA458824.1               | EST_HUMAN                     | sa38f11.s1 Stragene fetal retina 937202 Homo sapiens cDNA clone IMAGE:838413 3' similar to contains THR12 THR repetitive element; |
| 9020                   | 22089                 | 35639             | 1                    | 3.0E-43                                       | 7661721                  | NT                            | Homo sapiens hypothetical protein (HSA011916), mRNA   |
| 10088                  | 23106                 | 36709             | 0.88                 | 3.0E-43                                       | 11420217                 | NT                            | Homo sapiens similar to ornithine carbamoyltransferase (H. sapiens) (LOC83948), mRNA  |
| 12026                  | 25010                 | 38712             | 1.42                 | 3.0E-43                                       | 5730038                  | NT                            | Homo sapiens SET domain and mariner transposase fusion gene (SETIMAR) mRNA  |
| 188                    | 13410                 |                   | 7.24                 | 2.0E-43                                       | A180764.1                | EST_HUMAN                     | q616c09.x1 Soares testis, NHT Homo sapiens cDNA clone IMAGE:1733968 3' similar to contains PTR7.13 PTR7 PTR7 repetitive element;  |
| 6604                   | 19764                 | 33152             | 1.2                  | 2.0E-43                                       | BE222778.1               | EST_HUMAN                     | h153a08.x1 NCI_CGAP_Bim41 Homo sapiens cDNA clone IMAGE:3173760 3' similar to contains element MER40 repetitive element;          |
| 6804                   | 19764                 | 33153             | 1.2                  | 2.0E-43                                       | BE222778.1               | EST_HUMAN                     | h153a08.x1 NCI_CGAP_Bim41 Homo sapiens cDNA clone IMAGE:3173760 3' similar to contains element MER40 repetitive element;          |
| 7426                   | 20503                 | 33973             | 1.29                 | 2.0E-43                                       | AW207390.1               | EST_HUMAN                     | U1H-B11-af-a-09-O-U1.s1 NCI_CGAP_Sub3 Homo sapiens cDNA clone IMAGE:2721712 3'  |
| 8503                   | 21584                 |                   | 3.16                 | 2.0E-43                                       | U43701.1                 | NT                            | Human ribosomal protein L23a mRNA, complete cds   |
| 11476                  | 24835                 |                   | 4.76                 | 2.0E-43                                       | T03007.1                 | EST_HUMAN                     | Human ribosomal protein L23a mRNA, complete cds   |
| 1681                   | 14833                 | 27917             | 2.96                 | 1.0E-43                                       | AF154836.1               | NT                            | FB1G5 Fetal brain, Stragene Homo sapiens cDNA clone FB1G5 3' and similar to LINE-1  |
| 1681                   | 14833                 | 27918             | 2.96                 | 1.0E-43                                       | AF154836.1               | NT                            | Homo sapiens Ras-like GTP-binding protein (RAB27A) gene, exons 1b and 2   |
| 1742                   | 14891                 | 27985             | 4.12                 | 1.0E-43                                       | AL163284.2               | NT                            | Homo sapiens Ras-like GTP-binding protein (RAB27A) gene, exons 1b and 2   |
| 2766                   | 16902                 | 29009             | 4.73                 | 1.0E-43                                       | BF348283.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C084   |
| 5826                   | 18723                 | 31740             | 0.89                 | 1.0E-43                                       | 4886544                  | NT                            | 602022313F1 NCI_CGAP_Bim67 Homo sapiens cDNA clone IMAGE:4157688 6'   |
| 6744                   | 18900                 | 33291             | 6.84                 | 1.0E-43                                       | 4507168                  | NT                            | Homo sapiens pyruvate dehydrogenase kinase, isoenzyme 3 (PDK3) mRNA   |
| 6744                   | 18900                 | 33292             | 6.84                 | 1.0E-43                                       | 4507168                  | NT                            | Homo sapiens Sp4 transcription factor (SP4) mRNA  |

Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 7109                   | 18533                 | 31488             | 1.19                 | 1.0E-43                                       | R19751.1                 | EST_HUMAN                     | y940c01.1 Scores Infant brain 1N1B Homo sapiens cDNA clone IMAGE:34732 5' similar to    |
| 8117                   | 21189                 | 34720             | 0.6                  | 1.0E-43                                       | AF176285.1               | NT                            | SP-BD38_MOUSE P28658 BRAIN PROTEIN DN38 ;   |
| 8266                   | 21338                 |                   | 2.17                 | 1.0E-43                                       | AF188490.1               | NT                            | Homo sapiens vacuolar sorting protein 35 (VPS35) mRNA, complete cds                     |
| 9037                   | 22116                 | 35659             | 28.54                | 1.0E-43                                       | AW863676.1               | EST_HUMAN                     | Homo sapiens 8q22.1 region and MTG8 (CBFAZT1) gene, partial cds                         |
| 10498                  | 23633                 | 37143             | 0.66                 | 1.0E-43                                       | AW853229.1               | EST_HUMAN                     | EST1375749 IMAGE: ressequenes, MAGB Homo sapiens cDNA                                   |
| 11206                  | 24275                 | 37912             | 6.81                 | 1.0E-43                                       | AI884961.1               | EST_HUMAN                     | EST1365289 IMAGE: ressequenes, MAGB Homo sapiens cDNA                                   |
| 11847                  | 24728                 | 38418             | 3.05                 | 1.0E-43                                       | 11424378                 | NT                            | w87h01.x1 NCL CGAP Kid11 Homo sapiens cDNA clone IMAGE:2494705 3'                       |
| 12248                  | 25189                 |                   | 2.29                 | 1.0E-43                                       | AL137984.1               | EST_HUMAN                     | Homo sapiens calcium channel, voltage-dependent, alpha 1E subunit (CAGNA1E), mRNA       |
| 12550                  | 25373                 | 32071             | 3.16                 | 1.0E-43                                       | AI675416.1               | EST_HUMAN                     | DKFZp781D1015.1 761 (synonym: ham2) Homo sapiens cDNA clone DKFZp781D1015 5'            |
| 12805                  | 25538                 | 32013             | 3.21                 | 9.0E-44                                       | 11418322                 | NT                            | w66b04.x1 NCL CGAP Pr28 Homo sapiens cDNA clone IMAGE:2313775 3'                        |
| 913                    | 14088                 | 27163             | 5.32                 | 8.0E-44                                       | AI222385.1               | EST_HUMAN                     | Homo sapiens cadherin EGF LAG seven-pass G-type receptor 1 (CELSR1), mRNA               |
| 913                    | 14088                 | 27154             | 6.32                 | 8.0E-44                                       | AI222385.1               | EST_HUMAN                     | q123g01.x1 Scores NFL T. GBC S1 Homo sapiens cDNA clone IMAGE:1845552 3'                |
| 8736                   | 21815                 | 35350             | 2.89                 | 8.0E-44                                       | X94354.1                 | NT                            | q123g01.x1 Scores NFL T. GBC S1 Homo sapiens cDNA clone IMAGE:1845552 3'                |
| 10546                  | 23580                 | 37189             | 0.5                  | 8.0E-44                                       | 11423497                 | NT                            | H. sapiens DNA for Cone cGMP-PDE gene   |
| 10545                  | 23580                 | 37190             | 0.5                  | 8.0E-44                                       | 11423497                 | NT                            | Homo sapiens small proline-rich protein 2C (SPRR2C), mRNA                               |
| 11436                  | 24497                 | 38164             | 2.87                 | 8.0E-44                                       | Y10488.2                 | NT                            | Homo sapiens small proline-rich protein 2C (SPRR2C), mRNA                               |
| 11887                  | 24972                 | 38877             | 1.76                 | 8.0E-44                                       | L29139.1                 | NT                            | Homo sapiens mRNA for tyrosine kinase, partial cds                                      |
| 12601                  | 25345                 | 32065             | 2.89                 | 8.0E-44                                       | 11527389                 | NT                            | Homo sapiens myosin mRNA, partial cds   |
| 12544                  | 25735                 | 31946             | 2.17                 | 8.0E-44                                       | 11418088                 | NT                            | Homo sapiens polymerase (RNA) II (DNA directed) polypeptide F (POLR2F), mRNA            |
| 12945                  | 25938                 | 31780             | 1.85                 | 8.0E-44                                       | 11418088                 | NT                            | Homo sapiens putative nuclear protein (HRIHFB2122), mRNA                                |
| 13126                  | 25735                 | 31946             | 2.29                 | 8.0E-44                                       | 11418088                 | NT                            | Homo sapiens protein kinase C, alpha binding protein (PRKCBP), mRNA                     |
| 676                    | 13862                 |                   | 1.13                 | 7.0E-44                                       | R06035.1                 | EST_HUMAN                     | Homo sapiens putative nuclear protein (HRIHFB2122), mRNA                                |
| 2307                   | 15439                 | 28573             | 1.19                 | 7.0E-44                                       | 6031888                  | NT                            | y689e01.1 Scores fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:124820 5'       |
| 3031                   | 16207                 | 28228             | 4.44                 | 7.0E-44                                       | AF048728.1               | NT                            | Homo sapiens LIM domain-containing preferred translocation partner in lipoma (LPP) mRNA |
| 3031                   | 16207                 | 28230             | 4.44                 | 7.0E-44                                       | AF048728.1               | NT                            | Homo sapiens minisatellite ms32 repeat region   |
| 3985                   | 17123                 | 30126             | 2.71                 | 7.0E-44                                       | AL163284.2               | NT                            | Homo sapiens minisatellite ms32 repeat region   |
| 4366                   | 17499                 | 30479             | 0.85                 | 7.0E-44                                       | AF231919.1               | NT                            | Homo sapiens chromosome 21 segment HS21C084   |
| 4366                   | 17499                 | 30480             | 0.85                 | 7.0E-44                                       | AF231919.1               | NT                            | Homo sapiens chromosome 21 unknown mRNA   |
| 8379                   | 21460                 | 34963             | 2.39                 | 7.0E-44                                       | AF231919.1               | EST_HUMAN                     | Homo sapiens chromosome 21 unknown mRNA   |
| 6229                   | 19404                 | 32754             | 0.67                 | 6.0E-44                                       | AU169839.1               | EST_HUMAN                     | AU169839 Y79AA1 Homo sapiens cDNA clone Y79AA1000488 3'                                 |
| 314                    | 13530                 |                   | 4.25                 | 5.0E-44                                       | AI289380.1               | NT                            | HSAADYUP.P. Human fetal Brain Whole tissue Homo sapiens cDNA                            |
| 342                    | 13553                 |                   | 2.42                 | 5.0E-44                                       | AJ289380.1               | NT                            | Homo sapiens KIAA0851 gene (partial), X13 gene and LZTFL1 gene                          |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 8072                   | 21154                 | 34873             | 4.12                 | 5.0E-44                                       | AI598523.1               | EST_HUMAN                     | tr40d02.x1 NCI_CGAP_Bm26 Homo sapiens cDNA clone IMAGE:2170083 3' similar to contains OFR.L1<br>OFR OFR repetitive element : |
| 9584                   | 22726                 |                   | 1.39                 | 5.0E-44                                       | AU124571.1               | EST_HUMAN                     | AU124571 NT2RM4 Homo sapiens cDNA clone NT2RM4000218 5'  |
| 9501                   | 18668                 | 29678             | 4.27                 | 4.0E-44                                       | AL163033.2               | NT                            | Homo sapiens chromosome 21 segment HS21C103  |
| 5126                   | 18253                 |                   | 0.89                 | 4.0E-44                                       | AI435226.1               | EST_HUMAN                     | 3811402.x1 NCI_CGAP_Pan1 Homo sapiens cDNA clone IMAGE:2130147 3'  |
| 7639                   | 20708                 | 34187             | 0.67                 | 4.0E-44                                       | BE8683176.1              | EST_HUMAN                     | 601508601F1 NIH_MGC_71 Homo sapiens cDNA clone IMAGE:3910152 5'  |
| 8468                   | 21547                 | 36077             | 0.88                 | 4.0E-44                                       | L21948.1                 | NT                            | Human fibrillin (FBN1) locus polymorphism  |
| 8078                   | 22158                 |                   | 0.71                 | 4.0E-44                                       | BE176818.1               | EST_HUMAN                     | RC3-PT0585-010400-023-008 HT0585 Homo sapiens cDNA   |
| 11513                  | 24570                 | 38247             | 5.64                 | 4.0E-44                                       | U90878.1                 | NT                            | Homo sapiens carboxyl terminal LIM domain protein (GLIM1) mRNA, complete cds   |
| 1827                   | 14976                 |                   | 1.5                  | 3.0E-44                                       | 6912477                  | NT                            | Homo sapiens karyophenin alpha 6 (impartin alpha 7) (KFNAG6), mRNA   |
| 3167                   | 16342                 | 29350             | 5.11                 | 3.0E-44                                       | AA169851.1               | EST_HUMAN                     | 2p18k05.11 Stratagene fetal retina 837202 Homo sapiens cDNA clone IMAGE:608777 5'  |
| 7970                   | 21020                 | 34533             | 0.63                 | 3.0E-44                                       | BE584820.1               | EST_HUMAN                     | 601510547F1 NIH_MGC_71 Homo sapiens cDNA clone IMAGE:3912010 5'  |
| 9719                   | 22784                 | 36355             | 0.63                 | 3.0E-44                                       | AF003273.1               | NT                            | Sus scrofa domestica submaxillary epimuculin mRNA, complete cds  |
| 1074                   | 14240                 | 27286             | 1.43                 | 2.0E-44                                       | 4826685                  | NT                            | Homo sapiens DEADH (Asp-Glu-Ala-Asp/His) box polypeptide 1 (DDX1) mRNA   |
| 1074                   | 14240                 | 27297             | 1.43                 | 2.0E-44                                       | 4826685                  | NT                            | Homo sapiens DEADH (Asp-Glu-Ala-Asp/His) box polypeptide 1 (DDX1) mRNA   |
| 1234                   | 14393                 | 27455             | 3.61                 | 2.0E-44                                       | 5803200                  | NT                            | Homo sapiens transmembrane trafficking protein (TMP21), mRNA   |
| 1234                   | 14393                 | 27456             | 3.61                 | 2.0E-44                                       | 5803200                  | NT                            | Homo sapiens transmembrane trafficking protein (TMP21), mRNA   |
| 1340                   | 14496                 | 27588             | 6.92                 | 2.0E-44                                       | AF133588.1               | NT                            | Homo sapiens RAB38 (RAB38) mRNA, complete cds  |
| 1400                   | 14554                 | 27628             | 1.5                  | 2.0E-44                                       | BE465325.1               | EST_HUMAN                     | hw14g06.x1 NCI_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3182838 3' similar to SW:OXYB_HUMAN                                   |
| 2219                   | 15353                 | 28494             | 9.07                 | 2.0E-44                                       | AF070651.1               | NT                            | P220399 OXYSTEROL-BINDING PROTEIN :  |
| 2605                   | 15728                 |                   | 1.26                 | 2.0E-44                                       | 4507582                  | NT                            | Homo sapiens tissue-type bone marrow zinc finger protein 4 mRNA, complete cds  |
| 2642                   | 15785                 | 28879             | 0.94                 | 2.0E-44                                       | D25303.1                 | NT                            | Homo sapiens tumor necrosis factor (ligand) superfamily, member 10 (TNFSF10) mRNA  |
| 2676                   | 15786                 |                   | 2.3                  | 2.0E-44                                       | 5901933                  | NT                            | Human mRNA for integrin alpha subunit, complete cds  |
| 3559                   | 16724                 | 28740             | 1.34                 | 2.0E-44                                       | D87875.1                 | NT                            | Homo sapiens adaptor-related protein complex 4, sigma 1 subunit (CLAPS4), mRNA   |
| 4882                   | 17827                 | 30813             | 1.75                 | 2.0E-44                                       | AW884378.1               | EST_HUMAN                     | Homo sapiens DNA for amyloid precursor protein, complete cds   |
| 6220                   | 18396                 | 32744             | 1.75                 | 2.0E-44                                       | 11446801                 | NT                            | PM4-SIN0018-120500-003-004 SN0018 Homo sapiens cDNA  |
| 6220                   | 18396                 |                   |                      |   |                          |                               | Homo sapiens chemokine (C-C motif) receptor 8 (CCR8), mRNA   |
| 6220                   | 18396                 |                   |                      |   |                          |                               | Homo sapiens general transcription factor 2-1 (GTF2) mRNA, alternatively spliced product, complete cds                       |
| 7572                   | 20844                 | 34121             | 3.8                  | 2.0E-44                                       | 11419228                 | NT                            | Homo sapiens glutamate receptor, metabotropic 3 (GRM3), mRNA   |
| 7572                   | 20844                 | 34122             | 3.8                  | 2.0E-44                                       | 11419228                 | NT                            | Homo sapiens glutamate receptor, metabotropic 3 (GRM3), mRNA   |
| 8823                   | 21703                 | 35238             | 0.7                  | 2.0E-44                                       | 7706370                  | NT                            | Homo sapiens vesicle transport-related protein (KIAA0817), mRNA  |
| 8823                   | 21703                 | 35239             | 0.7                  | 2.0E-44                                       | 7706370                  | NT                            | Homo sapiens vesicle transport-related protein (KIAA0817), mRNA  |
| 8819                   | 21898                 | 35437             | 1.8                  | 2.0E-44                                       | BE388058.1               | EST_HUMAN                     | 801286914F1 NIH_MGC_44 Homo sapiens cDNA clone IMAGE:3613666 5'  |

Page 299 of 550  
Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 12162                  | 26122                 |                   | 4.59                 | 2.0E-44                                       | BE244802.1               | EST_HUMAN                     | TCBAP1E2795 Pediatric pre-B cell acute lymphoblastic leukemia Baylce-HGSC project=TCBA Homo sapiens cDNA clone TCBAP2795   |
| 12730                  | 26094                 |                   | 1.56                 | 2.0E-44                                       | 4826963                  | NT                            | Homo sapiens neuronal cell adhesion molecule (NRCAM) mRNA  |
| 63                     | 13282                 | 26306             | 5.24                 | 1.0E-44                                       | 7657334                  | NT                            | Homo sapiens Mississippin/NIK-related kinase (MINK), mRNA  |
| 63                     | 13282                 | 26307             | 5.24                 | 1.0E-44                                       | 7657334                  | NT                            | Homo sapiens Mississippin/NIK-related kinase (MINK), mRNA  |
| 594                    | 13784                 | 26804             | 1.63                 | 1.0E-44                                       | AW853192.1               | EST_HUMAN                     | RC1-CT0249-030300-028-h12 CT0249 Homo sapiens cDNA   |
| 1224                   | 14384                 |                   | 1.96                 | 1.0E-44                                       | AW994803.1               | EST_HUMAN                     | RC1-BN0039-110300-012-b01 BN0039 Homo sapiens cDNA   |
| 1605                   | 14758                 |                   | 8.06                 | 1.0E-44                                       | AL183303.2               | NT                            | Homo sapiens chromosome 21 segment HS21C103  |
| 2269                   | 15431                 | 28563             | 6.17                 | 1.0E-44                                       | AA434554.1               | EST_HUMAN                     | zW53d02.1 Sources: total_fetus_Nb2HF8_9w Homo sapiens cDNA clone IMAGE:773763 5' similar to contains THR.3 THR repetitive element;   |
| 2269                   | 15431                 | 28564             | 6.17                 | 1.0E-44                                       | AA434554.1               | EST_HUMAN                     | zW53d02.1 Sources: total_fetus_Nb2HF8_9w Homo sapiens cDNA clone IMAGE:773763 5' similar to contains THR.3 THR repetitive element;   |
| 2818                   | 16932                 | 29043             | 1.74                 | 1.0E-44                                       | AF198779.1               | NT                            | Homo sapiens transcription factor (GHM enhancer 3, JM11 protein, JM5 protein, T54 protein, JM10 protein, AA differentiation-dependent protein, triple LIM domain protein 6, and synaptophysin genes, complete cds; and L-type calcium channel $\alpha$ |
| 3819                   | 16978                 |                   | 3                    | 1.0E-44                                       | AA456989.1               | EST_HUMAN                     | es01c08.s1 Sources: NIH/MPU_S1 Homo sapiens cDNA clone IMAGE:811984 3'   |
| 5221                   | 18343                 | 31314             | 0.68                 | 1.0E-44                                       | AJ130755.1               | NT                            | Homo sapiens alpha satellite DNA, M1 monomer type  |
| 5221                   | 18343                 | 31315             | 0.68                 | 1.0E-44                                       | AJ130755.1               | NT                            | Homo sapiens alpha satellite DNA, M1 monomer type  |
| 8460                   | 21541                 | 35070             | 0.91                 | 1.0E-44                                       | AW967073.1               | EST_HUMAN                     | EST378147 MAGE resequenced, MAGJ Homo sapiens cDNA   |
| 8460                   | 21541                 | 35071             | 0.91                 | 1.0E-44                                       | AW967073.1               | EST_HUMAN                     | EST378147 MAGE resequenced, MAGJ Homo sapiens cDNA   |
| 8848                   | 21927                 | 35468             | 0.96                 | 1.0E-44                                       | AL163209.2               | NT                            | Homo sapiens chromosome 21 segment HS21C009  |
| 9227                   | 22305                 | 35848             | 0.56                 | 1.0E-44                                       | AJ337183.1               | EST_HUMAN                     | q888g07.xt NCI CGAP_G06 Homo sapiens cDNA clone IMAGE:2008628 3'   |
| 11284                  | 24333                 |                   | 4.13                 | 1.0E-44                                       | AV714608.1               | EST_HUMAN                     | AV714608 DCB Homo sapiens cDNA clone DCB8Y503 5'   |
| 11820                  | 24809                 | 38505             | 3.47                 | 1.0E-44                                       | 10082684                 | NT                            | Homo sapiens Sush domain (SCR repeat) containing (BK65A8.2), mRNA  |
| 11890                  | 24878                 | 38574             | 3.21                 | 1.0E-44                                       | AW846987.1               | EST_HUMAN                     | RC1-CT0198-150899-011-C08 CT0198 Homo sapiens cDNA   |
| 11890                  | 24878                 | 38575             | 3.21                 | 1.0E-44                                       | AW846987.1               | EST_HUMAN                     | RC1-CT0198-150899-011-C08 CT0198 Homo sapiens cDNA   |
| 4701                   | 17838                 | 30821             | 0.98                 | 9.0E-45                                       | 8922391                  | NT                            | Homo sapiens hypothetical protein FLJ10378 (FLJ10378), mRNA  |
| 4701                   | 17838                 | 30822             | 0.98                 | 9.0E-45                                       | 8922391                  | NT                            | Homo sapiens hypothetical protein FLJ10378 (FLJ10378), mRNA  |
| 6787                   | 18842                 | 33340             | 1.41                 | 9.0E-45                                       | AB023212.1               | NT                            | Homo sapiens mRNA for KIAA0905 protein, partial cds  |
| 2591                   | 15716                 | 28834             | 3.9                  | 8.0E-45                                       | 5174718                  | NT                            | Homo sapiens TRK-fused gene (NOTE: non-standard symbol and name) (TFG) mRNA  |
| 5193                   | 18915                 | 31283             | 0.63                 | 8.0E-45                                       | 5174718                  | NT                            | Homo sapiens TRK-fused gene (NOTE: non-standard symbol and name) (TFG) mRNA  |
| 8298                   | 21980                 | 34902             | 1.03                 | 8.0E-45                                       | AA377885.1               | EST_HUMAN                     | EST80893 Synovial sarcoma Homo sapiens cDNA 5' end   |
| 1583                   | 14735                 |                   | 2.36                 | 6.0E-45                                       | AN675425.1               | EST_HUMAN                     | wt88c08.x1 NCI CGAP_P128 Homo sapiens cDNA clone IMAGE:2313802 3' similar to contains L1.t1 L1 repetitive element;   |

Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 4087                   | 17242                 |                   | 3.77                 | 6.0E-45                                       | AW157570.1               | EST_HUMAN                     | au83107.x1 Schneider fetal brain 00004 Homo sapiens cDNA clone IMAGE:2782809 3' similar to SW:R13A_HUMAN P40429 60S RIBOSOMAL PROTEIN L13A; |
| 12911                  | 26154                 |                   | 1.89                 | 6.0E-45                                       | 11418213                 | NT                            | Homo sapiens ADP-ribosylation factor GTPase activating protein 1 (ARFGAP1), mRNA  |
| 915                    | 14090                 |                   | 1.71                 | 6.0E-45                                       | AL163203.2               | NT                            | Homo sapiens chromosome 21 segment HS21C003   |
| 2058                   | 15199                 | 26313             | 4.42                 | 5.0E-45                                       | BF333627.1               | EST_HUMAN                     | CM4-CN0044-180200-675-901 CN0044 Homo sapiens cDNA  |
| 3281                   | 18455                 | 29477             | 2.87                 | 6.0E-45                                       | AI523768.1               | EST_HUMAN                     | U9407.x1 NCL_CGAP_CLL1 Homo sapiens cDNA clone IMAGE:2116453 3' similar to SW:PAX1_MOUSE  |
| 5629                   | 18823                 | 31897             | 8.95                 | 5.0E-45                                       | AA397781.1               | EST_HUMAN                     | P09084 PAIRED BOX PROTEIN PAX-1;  |
| 6143                   | 19321                 | 32684             | 1.09                 | 5.0E-45                                       | Y18933.1                 | NT                            | z172403.s1 Soares testis_NHT Homo sapiens cDNA clone IMAGE:727877 3' similar to contains element TAR1 repetitive element;                   |
| 6143                   | 19321                 | 32685             | 1.09                 | 5.0E-45                                       | Y18933.1                 | NT                            | Homo sapiens MCP-1 gene and enhancer region   |
| 6190                   | 19366                 | 32714             | 0.92                 | 5.0E-45                                       | AB022318.1               | NT                            | Homo sapiens MCP-1 gene and enhancer region   |
| 6190                   | 19366                 | 32715             | 0.92                 | 5.0E-45                                       | AB022318.1               | NT                            | Homo sapiens mRNA for inducible nitric oxide synthase, complete cds   |
| 6318                   | 19490                 | 32847             | 0.87                 | 5.0E-45                                       | 11496268                 | NT                            | Homo sapiens mRNA for inducible nitric oxide synthase, complete cds   |
| 6318                   | 19490                 | 32848             | 0.87                 | 5.0E-45                                       | 11496268                 | NT                            | Homo sapiens zinc finger protein 277 (ZNF277), mRNA   |
| 8471                   | 21552                 | 35082             | 1.12                 | 5.0E-45                                       | 11418704                 | NT                            | Homo sapiens zinc finger protein 277 (ZNF277), mRNA   |
| 8241                   | 22318                 | 35861             | 1.45                 | 5.0E-45                                       | 4759223                  | NT                            | Homo sapiens zinc finger protein 277 (ZNF277), mRNA   |
| 11987                  | 24982                 | 36888             | 2.5                  | 5.0E-45                                       | 8923688                  | NT                            | Homo sapiens zinc finger protein 277 (ZNF277), mRNA   |
| 1197                   | 14390                 | 27385             | 6.3                  | 4.0E-45                                       | X95828.1                 | NT                            | Homo sapiens programmed cell death 5 (PDCD5), mRNA  |
| 2365                   | 15496                 | 26622             | 2.15                 | 4.0E-45                                       | BE266622.1               | EST_HUMAN                     | Homo sapiens golgin-like protein (GLP), mRNA  |
| 9157                   | 22235                 |                   | 0.81                 | 4.0E-45                                       | AA226220.1               | EST_HUMAN                     | H. sapiens ART14 gene   |
| 12186                  | 26389                 | 31659             | 1.36                 | 4.0E-45                                       | 11435947                 | NT                            | 60119440F-1 NIH_MGC_7 Homo sapiens cDNA clone IMAGE:3538425 5'  |
| 3411                   | 16590                 |                   | 0.93                 | 3.0E-45                                       | T71480.1                 | EST_HUMAN                     | repetitive element;   |
| 4199                   | 16590                 |                   | 1.03                 | 3.0E-45                                       | T71480.1                 | EST_HUMAN                     | Homo sapiens chromosome 12 open reading frame 3 (C12ORF3), mRNA   |
| 6368                   | 19536                 | 32895             | 1.34                 | 3.0E-45                                       | 6753651                  | NT                            | y03507.1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:110245 5'  |
| 6366                   | 19536                 | 32896             | 1.34                 | 3.0E-45                                       | 6753651                  | NT                            | y03507.1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:110245 5'  |
| 8845                   | 21725                 |                   | 1.76                 | 3.0E-45                                       | AV723976.1               | EST_HUMAN                     | Mus musculus dynein, axon, heavy chain 11 (Dnaht11), mRNA   |
| 8891                   | 22070                 | 35810             | 4.31                 | 3.0E-45                                       | 4758481                  | NT                            | Mus musculus dynein, axon, heavy chain 11 (Dnaht11), mRNA   |
| 10515                  | 23650                 | 37169             | 7.52                 | 3.0E-45                                       | AL163227.2               | NT                            | AV723976 HTB Homo sapiens cDNA clone HTBAAG01 5'  |
| 10515                  | 23650                 | 37160             | 7.52                 | 3.0E-45                                       | AL163227.2               | NT                            | Homo sapiens golgi autoantigen, golgin subfamily a, 2 (GOLGA2) mRNA   |
| 13040                  | 26078                 |                   | 3.45                 | 3.0E-45                                       | X89211.1                 | NT                            | Homo sapiens chromosome 21 segment HS21C027   |
| 2572                   | 16597                 |                   | 3.12                 | 2.0E-45                                       | AL163218.2               | NT                            | Homo sapiens chromosome 21 segment HS21C027   |
| 3097                   | 16273                 | 26287             | 0.92                 | 2.0E-45                                       | AI243213.1               | NT                            | H. sapiens DNA for endogenous retroviral like element   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens chromosome 21 segment HS21C018   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens partial 5-HT4 receptor gene, exons 2 to 5  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 6651                   | 16810                 | 33198             | 5.45                 | 2.0E-45                                       | L01665.1                 | NT                            | Human eosinophil Charcot-Leyden crystal (CLC) protein (lysophospholipase) gene, promoter and exon 1                      |
| 7786                   | 20842                 | 34334             | 1.1                  | 2.0E-45                                       | BE782184.1               | EST_HUMAN                     | 601467783F1 NIH_MGC_67 Homo sapiens cDNA clone IMAGE:3870838 5'  |
| 8610                   | 21690                 | 35228             | 0.91                 | 2.0E-45                                       | AW634834.1               | EST_HUMAN                     | RCOL1 T0001-150200-032-d11 LT0001 Homo sapiens cDNA  |
| 9784                   | 22824                 | 36402             | 0.51                 | 2.0E-45                                       | AW636786.1               | EST_HUMAN                     | ts56a01.x1 NCI CGAP Kid8 Homo sapiens cDNA clone IMAGE:2232552 3'  |
| 11042                  | 25867                 | 37764             | 12.66                | 2.0E-45                                       | BE934350.1               | EST_HUMAN                     | MF0-H10923-160800-201-a02 HT0923 Homo sapiens cDNA   |
| 11450                  | 24510                 | 38177             | 2.71                 | 2.0E-45                                       | AA458770.1               | EST_HUMAN                     | aa8712.11 Stratagene fetal retina 837202 Homo sapiens cDNA clone IMAGE:838319 5' similar to TR:G1144669 G1144568 R-SLY1. |
| 11784                  | 24784                 | 38481             | 3.35                 | 2.0E-45                                       | AW270280.1               | EST_HUMAN                     | xp72a03.x1 NCI CGAP_Ov40 Homo sapiens cDNA clone IMAGE:2745868 3'  |
| 11784                  | 24784                 | 38482             | 3.35                 | 2.0E-45                                       | AW270280.1               | EST_HUMAN                     | xp72a03.x1 NCI CGAP_Ov40 Homo sapiens cDNA clone IMAGE:2745868 3'  |
| 13087                  | 25710                 |                   | 2.73                 | 2.0E-45                                       | 11418157                 | NT                            | Homo sapiens calcium channel, voltage-dependent, alpha 11 subunit (CACNA11), mRNA  |
| 126                    | 13617                 |                   | 1.22                 | 1.0E-45                                       | BE386855.1               | EST_HUMAN                     | 601284360F1 NIH_MGC_44 Homo sapiens cDNA clone IMAGE:3606183 5'  |
| 422                    | 13617                 |                   | 1.99                 | 1.0E-45                                       | BE386855.1               | EST_HUMAN                     | 601284360F1 NIH_MGC_44 Homo sapiens cDNA clone IMAGE:3606183 5'  |
| 485                    | 13679                 | 26714             | 1.02                 | 1.0E-45                                       | 4506412                  | NT                            | Homo sapiens RAP1A, member of RAS oncogene family (RAP1A), mRNA  |
| 1201                   | 14363                 | 27423             | 1.68                 | 1.0E-45                                       | 7657290                  | NT                            | Homo sapiens Langerhans cell specific C-type lectin (LANGERIN), mRNA   |
| 3172                   | 16347                 | 29354             | 10.41                | 1.0E-45                                       | U32169.1                 | NT                            | Human pro-a2 chain of collagen type XI (COL11A2) gene, complete cds  |
| 3581                   | 16746                 | 29764             | 0.85                 | 1.0E-45                                       | 8659558                  | NT                            | Homo sapiens chromosome 21 open reading frame 1 (C21orf4), mRNA  |
| 3684                   | 16827                 | 28836             | 0.69                 | 1.0E-45                                       | AB046811.1               | NT                            | Homo sapiens mRNA for KIAA1591 protein, partial cds  |
| 4589                   | 17736                 | 30716             | 6.4                  | 1.0E-45                                       | BE396633.1               | EST_HUMAN                     | 601289110F1 NIH_MGC_8 Homo sapiens cDNA clone IMAGE:3619803 5'   |
| 4948                   | 17981                 |                   | 1.05                 | 1.0E-45                                       | H67443.1                 | EST_HUMAN                     | y05002.t1 Soares fetal liver spleen 1NFLS Homo sapiens cDNA clone IMAGE:204363 5'  |
| 5081                   | 18209                 | 31181             | 1.56                 | 1.0E-45                                       | 11545798                 | NT                            | Homo sapiens ribon protein (NIBAN), mRNA   |
| 8220                   | 21302                 | 34822             | 0.7                  | 1.0E-45                                       | 11422236                 | NT                            | Homo sapiens peroxisomal biogenesis factor 14 (PEX14), mRNA  |
| 8220                   | 21302                 | 34823             | 0.7                  | 1.0E-45                                       | 11422236                 | NT                            | Homo sapiens peroxisomal biogenesis factor 14 (PEX14), mRNA  |
| 8806                   | 21885                 | 35426             | 0.9                  | 1.0E-45                                       | D87875.1                 | NT                            | Homo sapiens DNA for amyloid precursor protein, complete cds   |
| 9321                   | 22367                 | 35950             | 3.92                 | 1.0E-45                                       | BE887843.1               | EST_HUMAN                     | 601511225F1 NIH_MGC_71 Homo sapiens cDNA clone IMAGE:3912535 5'  |
| 9722                   | 22767                 | 36359             | 0.99                 | 1.0E-45                                       | AB002297.1               | NT                            | Human mRNA for KIAA0299 gene, partial cds  |
| 12369                  | 25263                 | 32117             | 3.5                  | 1.0E-45                                       | 11418098                 | NT                            | Homo sapiens protein kinase C, alpha binding protein (PRKCABP), mRNA   |
| 12662                  | 25384                 |                   | 19.43                | 1.0E-45                                       | 11526281                 | NT                            | Homo sapiens hypothetical protein FLJ20454 (FLJ20454), mRNA  |
| 12668                  | 26397                 |                   | 6.42                 | 1.0E-45                                       | 11418177                 | NT                            | Homo sapiens Ran GTPase activating protein 1 (RANGAP1), mRNA   |
| 13047                  | 25696                 | 31863             | 4.02                 | 1.0E-45                                       | 11418157                 | NT                            | Homo sapiens calcium channel, voltage-dependent, alpha 11 subunit (CACNA11), mRNA  |
| 8423                   | 21504                 | 35037             | 2.71                 | 9.0E-46                                       | 8910293                  | NT                            | Mus musculus keratin complex 2, gene 6g (Krt2-6g), mRNA  |
| 8835                   | 21914                 |                   | 6.52                 | 9.0E-46                                       | AL163209.2               | NT                            | Homo sapiens chromosome 21 segment HS21C009  |
| 10687                  | 23730                 | 37335             | 6.89                 | 9.0E-46                                       | AW246884.1               | EST_HUMAN                     | 2822448.Sprime NIH_MGC_7 Homo sapiens cDNA clone IMAGE:2822449 5'  |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 2513                   | 15639                 | 28760             | 7.67                 | 8.0E-46                                       | A1433281.1               | EST_HUMAN                     | U32708.x1 NCL_CGAP_Gas4 Homo sapiens cDNA clone IMAGE:2132189 3' similar to gb:J00314_ma2    |
|                        |                       |                   |                      |   |                          |                               | TUBULIN BETA-1 CHAIN (HUMAN);  |
| 2513                   | 15639                 | 28761             | 7.67                 | 8.0E-46                                       | A1433281.1               | EST_HUMAN                     | U32708.x1 NCL_CGAP_Gas4 Homo sapiens cDNA clone IMAGE:2132189 3' similar to gb:J00314_ma2    |
| 8244                   | 21328                 |                   | 2.72                 | 8.0E-46                                       | BE167244.1               | EST_HUMAN                     | TUBULIN BETA-1 CHAIN (HUMAN);  |
| 4703                   | 17838                 |                   | 4.79                 | 7.0E-46                                       | BE386165.1               | EST_HUMAN                     | RCS-HT0506-280/200-012-C12 HT0506 Homo sapiens cDNA  |
| 4928                   | 18058                 |                   | 1.33                 | 7.0E-46                                       | BE064386.1               | EST_HUMAN                     | 601277292F1 NIH_MGC 20 Homo sapiens cDNA clone IMAGE:3818119 5'                              |
| 6167                   | 19343                 | 32689             | 4                    | 7.0E-46                                       | 8822708                  | NT                            | RC4-BT0310-110300-015-f10 BT0310 Homo sapiens cDNA   |
| 6623                   | 19783                 | 33171             | 1.8                  | 7.0E-46                                       | BF105945.1               | EST_HUMAN                     | Homo sapiens hypothetical protein FLJ10847 (FLJ10847), mRNA                                  |
| 12706                  | 25489                 |                   | 2.6                  | 7.0E-46                                       | AL163246.2               | NT                            | 601822835F1 NIH_MGC 77 Homo sapiens cDNA clone IMAGE:4042736 5'                              |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens chromosome 21 segment HS21C046  |
| 2812                   | 15926                 | 29037             | 6.87                 | 6.0E-46                                       | A1884381.1               | EST_HUMAN                     | U32708.x1 NCL_CGAP_U44 Homo sapiens cDNA clone IMAGE:2437575 3' similar to contains MER19.12 |
| 2812                   | 15926                 | 29038             | 6.87                 | 6.0E-46                                       | A1884381.1               | EST_HUMAN                     | U32708.x1 NCL_CGAP_U44 Homo sapiens cDNA clone IMAGE:2437575 3' similar to contains MER19.12 |
|                        |                       |                   |                      |   |                          |                               | MER19 repetitive element;  |
|                        |                       |                   |                      |   |                          |                               | U32708.x1 NCL_CGAP_U44 Homo sapiens cDNA clone IMAGE:2437575 3' similar to contains MER19.12 |
|                        |                       |                   |                      |   |                          |                               | MER19 repetitive element;  |
| 6257                   | 19431                 | 32778             | 11.57                | 6.0E-46                                       | A1635448.1               | EST_HUMAN                     | U32708.x1 NCL_CGAP_Kd8 Homo sapiens cDNA clone IMAGE:2232835 3' similar to TR:O60363 O60363  |
|                        |                       |                   |                      |   |                          |                               | SA GENE.;  |
| 7386                   | 20445                 | 33907             | 0.99                 | 6.0E-46                                       | AW513244.1               | EST_HUMAN                     | U32708.x1 NCL_CGAP_U11 Homo sapiens cDNA clone IMAGE:2706664 3' similar to gb:L08069 DNAJ    |
| 7541                   | 20514                 | 34091             | 0.87                 | 6.0E-46                                       | BF09740.1                | EST_HUMAN                     | PROTEIN HOMOLOG 2 (HUMAN);   |
| 11673                  | 23901                 |                   | 2.14                 | 6.0E-46                                       | BE784971.1               | EST_HUMAN                     | U32708.x1 NCL_CGAP_Sub8 Homo sapiens cDNA clone IMAGE:3087298 3'                             |
| 209                    | 13432                 |                   | 5.31                 | 6.0E-46                                       | AL163210.2               | NT                            | 601479409F1 NIH_MGC 68 Homo sapiens cDNA clone IMAGE:3880985 5'                              |
| 3617                   | 16781                 | 29788             | 1.17                 | 5.0E-46                                       | BE677194.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C010  |
| 3617                   | 16781                 | 29787             | 1.17                 | 5.0E-46                                       | BE677194.1               | EST_HUMAN                     | 7d81g01.x1 Lupski_dorsal_root_ganglion Homo sapiens cDNA clone IMAGE:3279408 3'              |
|                        |                       |                   |                      |   |                          |                               | 7d81g01.x1 Lupski_dorsal_root_ganglion Homo sapiens cDNA clone IMAGE:3279408 3'              |
| 6874                   | 20028                 | 33436             | 1.52                 | 5.0E-46                                       | BF590442.1               | EST_HUMAN                     | U32708.x1 NCL_CGAP_Kd11 Homo sapiens cDNA clone IMAGE:3258757 3' similar to TR:O76202        |
| 7080                   | 20174                 | 33598             | 3.89                 | 5.0E-46                                       | BF347228.1               | EST_HUMAN                     | U32708.x1 NCL_CGAP_Kd11 Homo sapiens cDNA clone IMAGE:3258757 3' similar to TR:O76202        |
| 7244                   | 20327                 | 33772             | 0.75                 | 5.0E-46                                       | AW582253.1               | EST_HUMAN                     | U32708.x1 NCL_CGAP_Kd11 Homo sapiens cDNA clone IMAGE:3258757 3' similar to TR:O76202        |
| 7544                   | 20516                 | 34093             | 0.59                 | 5.0E-46                                       | BE549744.1               | EST_HUMAN                     | U32708.x1 NCL_CGAP_Kd11 Homo sapiens cDNA clone IMAGE:3258757 3' similar to TR:O76202        |
|                        |                       |                   |                      |   |                          |                               | U32708.x1 NCL_CGAP_Kd11 Homo sapiens cDNA clone IMAGE:3258757 3' similar to TR:O76202        |
| 658                    | 13844                 |                   | 3.95                 | 4.0E-46                                       | AA601143.1               | EST_HUMAN                     | U32708.x1 NCL_CGAP_Kd11 Homo sapiens cDNA clone IMAGE:3258757 3' similar to TR:O76202        |
|                        |                       |                   |                      |   |                          |                               | U32708.x1 NCL_CGAP_Kd11 Homo sapiens cDNA clone IMAGE:3258757 3' similar to TR:O76202        |
| 1740                   | 14889                 | 27981             | 2.99                 | 4.0E-46                                       | AW770544.1               | EST_HUMAN                     | U32708.x1 NCL_CGAP_Kd11 Homo sapiens cDNA clone IMAGE:3258757 3' similar to TR:O76202        |
|                        |                       |                   |                      |   |                          |                               | U32708.x1 NCL_CGAP_Kd11 Homo sapiens cDNA clone IMAGE:3258757 3' similar to TR:O76202        |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 1740                   | 14880                 | 27982             | 2.99                 | 4.0E-46                                       | AW770544.1               | EST_HUMAN                     | h186c03.x1 NCL_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3008836 3' similar to gb:U14008_ma1             |
| 2788                   | 15913                 | 29021             | 7.4                  | 4.0E-46                                       | M18048.1                 | NT                            | LYSOZYME C PRECURSOR (HUMAN); contains element MER37 repetitive element;                               |
| 5553                   | 18750                 | 31788             | 2.1                  | 4.0E-46                                       | M36852.1                 | NT                            | Human endogenous retrovirus RTVL-H2  |
| 5553                   | 18750                 | 31787             | 2.1                  | 4.0E-46                                       | M36852.1                 | NT                            | Human Ig gamma chain gene V region, partial cds  |
| 12851                  | 25565                 | 31980             | 1.38                 | 4.0E-46                                       | AB002059.1               | NT                            | Human Ig gamma chain gene V region, partial cds  |
| 2359                   | 15490                 | 28920             | 0.94                 | 3.0E-46                                       | 7857203                  | NT                            | Homo sapiens DNA for Human P2XM, complete cds  |
| 4513                   | 17652                 | 30840             | 1.21                 | 3.0E-46                                       | 4506378                  | NT                            | Homo sapiens acidic 82 kDa protein mRNA (HISU16552), mRNA  |
| 4898                   | 18028                 | 31015             | 1.11                 | 3.0E-46                                       | Z73660.1                 | NT                            | Homo sapiens mitogen-activated protein kinase kinase kinase 3 (MAP4K3), mRNA                           |
| 4898                   | 18028                 | 31016             | 1.11                 | 3.0E-46                                       | Z73660.1                 | NT                            | H. sapiens Ig lambda light chain variable region gene (7c.11.2) germ-line, Ig-Light-Lambda; VLambda    |
| 8949                   | 22028                 | 35569             | 12.45                | 3.0E-46                                       | A1831462.1               | EST_HUMAN                     | H. sapiens Ig lambda light chain variable region gene (7c.11.2) germ-line, Ig-Light-Lambda; VLambda    |
| 9206                   | 22284                 | 35824             | 0.61                 | 3.0E-46                                       | L08850.1                 | NT                            | wf8c04.x1 NCL_CGAP_Lu19 Homo sapiens cDNA clone IMAGE:2406150 3' similar to contig THRLb2              |
| 9206                   | 22284                 | 35825             | 0.61                 | 3.0E-46                                       | L08850.1                 | NT                            | THR repetitive element;  |
| 11873                  | 24861                 | 38556             | 1.78                 | 3.0E-46                                       | D31785.1                 | NT                            | Human AD amyloid mRNA, complete cds  |
| 860                    | 14037                 | 27099             | 12.65                | 2.0E-46                                       | AA468846.1               | EST_HUMAN                     | Human AD amyloid mRNA, complete cds  |
| 1593                   | 14746                 |                   | 3.78                 | 2.0E-46                                       | AA678246.1               | EST_HUMAN                     | Human AD amyloid mRNA, complete cds  |
| 1671                   | 14823                 | 27906             | 5.63                 | 2.0E-46                                       | U78027.1                 | NT                            | Human mRNA for KIAA0081 gene, partial cds  |
| 6089                   | 18217                 | 31188             | 1.26                 | 2.0E-46                                       | AA389286.1               | EST_HUMAN                     | ne08a09.s1 NCL_CGAP_Cc3 Homo sapiens cDNA clone IMAGE:380408 3' similar to contains THR.b2 THR         |
| 7653                   | 20721                 | 34197             | 7.1                  | 2.0E-46                                       | 8910569                  | NT                            | repetitive element;  |
| 8260                   | 21342                 |                   | 1.29                 | 2.0E-46                                       | BE869161.1               | EST_HUMAN                     | z27a1.1.s1 Scores_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:431958 3'                  |
| 11524                  | 24590                 |                   | 1.82                 | 2.0E-46                                       | 7857233                  | NT                            | Homo sapiens Bruton's tyrosine kinase (BTK), alpha-D-galactosidase A (GLA), L44-like ribosomal protein |
| 12294                  | 26040                 |                   | 1.4                  | 2.0E-46                                       | BF028854.1               | EST_HUMAN                     | (L44L) and FTP3 (FTP3) genes, complete cds   |
| 12555                  | 25031                 |                   | 1.57                 | 2.0E-46                                       | H468391.1                | EST_HUMAN                     | z59a02.r1 Scores_testis_NHT Homo sapiens cDNA clone IMAGE:726850 5' similar to SW-RSP1_MOUSE           |
| 12596                  | 25401                 |                   | 3.31                 | 2.0E-46                                       | AA001786.1               | EST_HUMAN                     | Q01730 RSP-1 PROTEIN;  |
| 12834                  | 25923                 | 31864             | 4.28                 | 2.0E-46                                       | AW27214.1                | EST_HUMAN                     | Mus musculus sperm tail associated protein (Stap), mRNA  |
| 1281                   | 14418                 | 27483             | 4.31                 | 1.0E-46                                       | 4502894                  | NT                            | 801445137F1 NIH_MGC_65 Homo sapiens cDNA clone IMAGE:3849297 5'  |
| 2356                   | 15487                 | 28619             | 4.88                 | 1.0E-46                                       | AW978516.1               | EST_HUMAN                     | Homo sapiens small acidic protein (IMAGE145052), mRNA  |
|                        |                       |                   |                      |   |                          |                               | 601765225F1 NIH_MGC_53 Homo sapiens cDNA clone IMAGE:3997328 5'  |
|                        |                       |                   |                      |   |                          |                               | y32801.r1 Scores_fetal_liver_spleen_1NFLS_Homo sapiens cDNA clone IMAGE:206977 5'                      |
|                        |                       |                   |                      |   |                          |                               | zh84f12.r1 Scores_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:428016 5'                  |
|                        |                       |                   |                      |   |                          |                               | xq78h03.x1 NCL_CGAP_Lu34 Homo sapiens cDNA clone IMAGE:2756789 3'                                      |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens cell division cycle 10 (homologous to CDC10 of S. cerevisiae) (CDC10) mRNA                |
|                        |                       |                   |                      |   |                          |                               | EST350625 IMAGE resequences, MAGP Homo sapiens cDNA  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 2473                   | 15600                 | 28725             | 3.53                 | 1.0E-46                                       | H97330.1                 | EST_HUMAN                     | EST485085 WATM1 Homo sapiens cDNA clone 485085  |
| 3321                   | 16494                 | 29511             | 2.12                 | 1.0E-46                                       | AA631912.1               | EST_HUMAN                     | np78502.s1 NCI_CGAP_Py2 Homo sapiens cDNA clone IMAGE:1132395 similar to gb:X76717 H. sapiens   |
| 4895                   | 18124                 |                   | 3.13                 | 1.0E-46                                       | AB023197.1               | NT                            | MT-11 mRNA. (HUMAN);  |
| 5817                   | 19007                 | 32313             | 5.89                 | 1.0E-46                                       | BF194707.1               | EST_HUMAN                     | Homo sapiens mRNA for KIAA0980 protein, partial cds   |
| 6098                   | 25818                 | 32809             | 5.34                 | 1.0E-46                                       | 8923762                  | NT                            | 7682501.x1 NCI_CGAP_Ov18 Homo sapiens cDNA clone IMAGE:3643705 3'                               |
| 6098                   | 25818                 | 32810             | 5.34                 | 1.0E-46                                       | 8923762                  | NT                            | Homo sapiens centaurin-alpha 2 protein (HSA272195), mRNA  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens centaurin-alpha 2 protein (HSA272195), mRNA  |
|                        |                       |                   |                      |   |                          |                               | 7n48e07.x1 NCI_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3567852 3' similar to contains element   |
| 6746                   | 19902                 | 33295             | 0.64                 | 1.0E-46                                       | BF198247.1               | EST_HUMAN                     | MER22 repetitive element ;  |
| 11102                  | 19007                 | 32313             | 3.72                 | 1.0E-46                                       | BF194707.1               | EST_HUMAN                     | 7682501.x1 NCI_CGAP_Ov18 Homo sapiens cDNA clone IMAGE:3843705 3'                               |
| 11410                  | 24471                 | 38136             | 1.61                 | 1.0E-46                                       | AJ245821.1               | NT                            | Homo sapiens CTL2 gene  |
| 12323                  | 25233                 | 32105             | 1.39                 | 1.0E-46                                       | BF531102.1               | EST_HUMAN                     | 802072284F1 NCI_CGAP_Bm67 Homo sapiens cDNA clone IMAGE:4215398 5'                              |
| 12323                  | 25233                 | 32106             | 1.39                 | 1.0E-46                                       | BF531102.1               | EST_HUMAN                     | 802072284F1 NCI_CGAP_Bm67 Homo sapiens cDNA clone IMAGE:4215398 5'                              |
| 13176                  | 25784                 |                   | 1.89                 | 1.0E-46                                       | AV715377.1               | EST_HUMAN                     | AV715377 DCB Homo sapiens cDNA clone DCBAIE03 5'  |
| 787                    | 13068                 |                   | 3.7                  | 9.0E-47                                       | AJ271735.1               | NT                            | Homo sapiens Xq pseudautosomal region; segment 1/2  |
| 5047                   | 18175                 | 31152             | 3.05                 | 9.0E-47                                       | AW770528.1               | EST_HUMAN                     | h83e04.x1 NCI_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3009634 3' similar to TR-O75703 O75703    |
| 6506                   | 19672                 | 33039             | 0.86                 | 9.0E-47                                       | 11425439                 | NT                            | HYPOTHETICAL 12.4 KD PROTEIN ;  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens zinc finger protein ZNF288 (ZNF288), mRNA  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens similar to aldo-keto reductase family 1, member B1 (aldose reductase) (H. sapiens) |
| 11388                  | 24449                 | 38110             | 1.4                  | 9.0E-47                                       | 11432209                 | NT                            | (LOC83083), mRNA  |
| 12874                  | 26027                 | 31675             | 1.64                 | 9.0E-47                                       | 11417866                 | NT                            | Homo sapiens SEC14 (S. cerevisiae)-like 2 (SEC14L2), mRNA                                       |
| 1851                   | 14997                 | 28100             | 32.2                 | 8.0E-47                                       | Y18538.1                 | NT                            | Homo sapiens HLA-C gene, exon 5, individual 19323   |
| 1851                   | 14997                 | 28101             | 32.2                 | 8.0E-47                                       | Y18538.1                 | NT                            | Homo sapiens HLA-C gene, exon 6, individual 19323   |
| 2761                   | 15697                 | 29007             | 1.5                  | 8.0E-47                                       | 5453855                  | NT                            | Homo sapiens protein phosphatase 2, regulatory subunit B (B56), epsilon isoform (PPP2R6E) mRNA  |
| 3089                   | 16285                 | 29283             | 2.04                 | 8.0E-47                                       | AJ28043.1                | NT                            | Homo sapiens 859 kb contig between AML1 and CBR1 on chromosome 21q22, segment 3/3               |
| 3715                   | 18878                 | 29881             | 0.77                 | 8.0E-47                                       | AB041926.1               | NT                            | Homo sapiens mRNA for GSK family kinase MINK-2, complete cds                                    |
| 3715                   | 18878                 | 29882             | 0.77                 | 8.0E-47                                       | AB041926.1               | NT                            | Homo sapiens mRNA for GSK family kinase MINK-2, complete cds                                    |
| 12982                  | 25622                 |                   | 1.69                 | 7.0E-47                                       | AV683284.1               | EST_HUMAN                     | AV683284 GKO Homo sapiens cDNA clone GKASH11 5'   |
| 2013                   | 15737                 | 28851             | 3.04                 | 6.0E-47                                       | AL163246.2               | NT                            | Homo sapiens chromosome 21 segment HS21C046   |
| 8890                   | 21989                 | 35505             | 0.52                 | 6.0E-47                                       | U77054.1                 | EST_HUMAN                     | HSU77054 Human Homo sapiens cDNA clone NT   |
| 9476                   | 22533                 | 36097             | 6.83                 | 6.0E-47                                       | AI695189.1               | EST_HUMAN                     | b98H02.x1 NCI_CGAP_Ku11 Homo sapiens cDNA clone IMAGE:2298859 3'                                |
| 9913                   | 22953                 | 36538             | 0.69                 | 6.0E-47                                       | AB042824.1               | NT                            | Homo sapiens RECQL5 beta mRNA for DNA helicase recQ5 beta, complete cds                         |
| 9913                   | 22953                 | 36539             | 0.69                 | 6.0E-47                                       | AB042824.1               | NT                            | Homo sapiens RECQL5 beta mRNA for DNA helicase recQ5 beta, complete cds                         |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 6707                   | 19865                 | 33255             | 5.73                 | 5.0E-47                                       | 11423972                 | NT                            | Homo sapiens GDC37 (cell division cycle 37, S. cerevisiae, homolog) (CDC37), mRNA           |
| 11035                  | 24114                 |                   | 5.58                 | 5.0E-47                                       | M78590.1                 | EST_HUMAN                     | EST007738 Fetal brain, Strategene (cat#936206) Homo sapiens cDNA clone HFBCF07              |
| 1432                   | 14585                 | 27660             | 7.03                 | 4.0E-47                                       | 4557566                  | NT                            | Homo sapiens E1A binding protein p300 (EP300) mRNA  |
| 6971                   | 20199                 | 33625             | 0.82                 | 4.0E-47                                       | BE93898.1                | EST_HUMAN                     | MIR4-TN0108-280800-201-404 TN0108 Homo sapiens cDNA   |
| 8677                   | 21757                 | 35292             | 2.22                 | 4.0E-47                                       | BEG16483.1               | EST_HUMAN                     | 601280486F1 NIH_MGC_39 Homo sapiens cDNA clone IMAGE:3622437 5'                             |
| 8677                   | 21757                 | 36283             | 2.22                 | 4.0E-47                                       | BE616483.1               | EST_HUMAN                     | 601280486F1 NIH_MGC_39 Homo sapiens cDNA clone IMAGE:3622437 5'                             |
| 8818                   | 21897                 | 35436             | 0.83                 | 4.0E-47                                       | AW93377.1                | EST_HUMAN                     | RCS-BN0034-220300-015-f05 BN0034 Homo sapiens cDNA  |
| 11936                  | 24922                 |                   | 1.98                 | 4.0E-47                                       | AW615609.1               | EST_HUMAN                     | x068607.x1 NCI_CGAP_Lym12 Homo sapiens cDNA clone IMAGE:2848597 3' similar to SW:INT8_MOUSE |
| 558                    | 13751                 | 26778             | 2.09                 | 3.0E-47                                       | BE907634.1               | EST_HUMAN                     | Q84252 VIRAL INTEGRATION SITE PROTEIN INT-6, [1];   |
| 558                    | 13751                 | 26779             | 2.09                 | 3.0E-47                                       | BE907634.1               | EST_HUMAN                     | 601497639F1 NIH_MGC_70 Homo sapiens cDNA clone IMAGE:3898721 5'                             |
| 841                    | 14019                 | 27075             | 3.99                 | 3.0E-47                                       | N57483.1                 | EST_HUMAN                     | 601497639F1 NIH_MGC_70 Homo sapiens cDNA clone IMAGE:3898721 5'                             |
| 868                    | 14141                 | 27202             | 10.04                | 3.0E-47                                       | AL163284.2               | NT                            | y54604.s1 Soares_multiple_sclerosis_2NblHMSF Homo sapiens cDNA clone IMAGE:277327 3'        |
| 3376                   | 16548                 | 29562             | 0.97                 | 3.0E-47                                       | 4504116                  | NT                            | Homo sapiens chromosome 21 segment HS21C084   |
| 4073                   | 17229                 |                   | 6.61                 | 3.0E-47                                       | U93181.1                 | NT                            | Homo sapiens glutamate receptor, ionotropic, kainate 1 (GRIK1) mRNA                         |
| 4482                   | 17822                 | 30603             | 1.14                 | 3.0E-47                                       | M12959.1                 | NT                            | Homo sapiens nuclear dual-specificity phosphatase (SBF1) mRNA, partial cds                  |
| 6136                   | 19315                 | 32654             | 4.68                 | 3.0E-47                                       | AW408800.1               | EST_HUMAN                     | Human T-cell receptor active alpha-chain mRNA from JM cell line, complete cds               |
| 6136                   | 19316                 | 32655             | 4.68                 | 3.0E-47                                       | AW408800.1               | EST_HUMAN                     | UJ-HF-BM0-adv-d-07-0-UJ11 NIH_MGC_38 Homo sapiens cDNA clone IMAGE:3063205 5'               |
| 6994                   | 19852                 |                   | 1.71                 | 3.0E-47                                       | AI22413.1                | EST_HUMAN                     | UJ-HF-BM0-adv-d-07-0-UJ11 NIH_MGC_38 Homo sapiens cDNA clone IMAGE:3063205 5'               |
| 7540                   | 20813                 | 34089             | 0.88                 | 3.0E-47                                       | AI819755.1               | EST_HUMAN                     | q104e07.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:1843718 3'                     |
| 7540                   | 20813                 | 34090             | 0.88                 | 3.0E-47                                       | AI819755.1               | EST_HUMAN                     | wj11h08.x1 NCI_CGAP_K1212 Homo sapiens cDNA clone IMAGE:2402559 3'                          |
| 9033                   | 22112                 | 35654             | 0.77                 | 3.0E-47                                       | AW963786.1               | EST_HUMAN                     | wj11h08.x1 NCI_CGAP_J0412 Homo sapiens cDNA clone IMAGE:2402559 3'                          |
| 9033                   | 22112                 | 35655             | 0.77                 | 3.0E-47                                       | AW963786.1               | EST_HUMAN                     | EST375868 IMAGE resequences, MAGH Homo sapiens cDNA   |
| 152                    | 19377                 | 28409             | 1.21                 | 2.0E-47                                       | 4505318                  | NT                            | EST375868 IMAGE resequences, MAGH Homo sapiens cDNA   |
| 980                    | 14162                 | 27221             | 2.45                 | 2.0E-47                                       | AL163208.2               | NT                            | Homo sapiens myosin phosphatase, target subunit 2 (MYPT2), mRNA                             |
| 980                    | 14162                 | 27222             | 2.45                 | 2.0E-47                                       | AL163208.2               | NT                            | Homo sapiens chromosome 21 segment HS21C009   |
| 1598                   | 14751                 | 27859             | 0.95                 | 2.0E-47                                       | AI899278.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C009   |
| 1623                   | 14775                 | 27859             | 1.61                 | 2.0E-47                                       | 7692109                  | NT                            | wq86b02.x1 NCI_CGAP_GC5 Homo sapiens cDNA clone IMAGE:2478851 3'                            |
| 1712                   | 14853                 | 27862             | 4.49                 | 2.0E-47                                       | AA524514.1               | EST_HUMAN                     | Homo sapiens KIAA0428 gene product (KIAA0428), mRNA   |
| 4467                   | 17607                 | 30685             | 1.61                 | 2.0E-47                                       | 4504868                  | NT                            | hg43h12.s1 NCI_CGAP_Cs3 Homo sapiens cDNA clone IMAGE:937607 3'                             |
| 4503                   | 17643                 | 30628             | 1.67                 | 2.0E-47                                       | AA569592.1               | EST_HUMAN                     | (Homo sapiens ring finger protein (C3HC4 type) 8 (RNF8), mRNA                               |
| 4503                   | 17643                 | 30629             | 1.67                 | 2.0E-47                                       | AA569592.1               | EST_HUMAN                     | nt23g07.s1 NCI_CGAP_P11 Homo sapiens cDNA clone IMAGE:914652                                |
| 4628                   | 17764                 | 30746             | 2.14                 | 2.0E-47                                       | 5174648                  | NT                            | nt23g07.s1 NCI_CGAP_P11 Homo sapiens cDNA clone IMAGE:914652                                |
| 4933                   | 18063                 | 31046             | 1.25                 | 2.0E-47                                       | AW985168.1               | EST_HUMAN                     | Homo sapiens Rev/Rax activation domain binding protein-related (RAB-R) mRNA                 |
|                        |                       |                   |                      |   |                          |                               | EST1377239 IMAGE resequences, MAGI Homo sapiens cDNA  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 5245                   | 18368                 |                   | 0.71                 | 2.0E-47                                       | A041128.1                | EST_HUMAN                     | ov61h03.x1 Soares, testis NIH Homo sapiens cDNA clone IMAGE:1841845 3'   |
| 5804                   | 19093                 | 32407             | 0.8                  | 2.0E-47                                       | AF073921.1               | NT                            | Homo sapiens regulator of G-protein signaling 6 variant form (RGS6) mRNA, complete cds   |
| 6097                   | 19278                 | 32607             | 1.32                 | 2.0E-47                                       | BE778476.1               | EST_HUMAN                     | 601463932F1 NIH_MGC_87 Homo sapiens cDNA clone IMAGE:3867487 5'  |
| 6097                   | 19278                 | 32608             | 1.32                 | 2.0E-47                                       | BE778475.1               | EST_HUMAN                     | 601463932F1 NIH_MGC_87 Homo sapiens cDNA clone IMAGE:3867487 5'  |
| 7878                   | 25854                 |                   | 1.34                 | 2.0E-47                                       | L09731.1                 | NT                            | Homo sapiens 5-hydroxytryptamine 1D receptor pseudogene with an Alu repeat insertion   |
| 8151                   | 21233                 | 34753             | 1.96                 | 2.0E-47                                       | D87675.1                 | NT                            | Homo sapiens DNA for amyloid precursor protein, complete cds   |
| 8151                   | 21233                 | 34754             | 1.96                 | 2.0E-47                                       | D87675.1                 | NT                            | Homo sapiens DNA for amyloid precursor protein, complete cds   |
| 8915                   | 21994                 | 35533             | 1.76                 | 2.0E-47                                       | AF071771.1               | NT                            | Homo sapiens SPH-binding factor mRNA, partial cds  |
| 9690                   | 22739                 | 36308             | 1.27                 | 2.0E-47                                       | 11528138                 | NT                            | Homo sapiens BTG family, member 3 (BTG3), mRNA   |
| 12357                  | 26073                 | 31653             | 3.36                 | 2.0E-47                                       | R42423.1                 | EST_HUMAN                     | y82e08.x1 Soares Infant brain 1N1B Homo sapiens cDNA clone IMAGE:28968 3' similar to contains OFR repetitive element;                |
| 12394                  | 26078                 |                   | 1.87                 | 2.0E-47                                       | AL163209.2               | NT                            | Homo sapiens chromosome 21 segment HS21C008  |
| 1437                   | 14590                 | 27663             | 6.42                 | 1.0E-47                                       | A1334420.1               | EST_HUMAN                     | q959f03.x1 Soares fetal lung NIH HL19W Homo sapiens cDNA clone IMAGE:1931189 3'  |
| 3926                   | 17095                 | 30080             | 1.1                  | 1.0E-47                                       | BE280477.1               | EST_HUMAN                     | 601155332F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3138893 5'  |
| 3926                   | 17095                 | 30081             | 1.1                  | 1.0E-47                                       | BE280477.1               | EST_HUMAN                     | 601155332F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3138893 5'  |
| 5187                   | 18309                 | 31275             | 2.4                  | 1.0E-47                                       | AW813906.1               | EST_HUMAN                     | RC3-ST0187-130400-017-402 ST0187 Homo sapiens cDNA   |
| 7189                   | 20054                 | 33464             | 10.76                | 1.0E-47                                       | A1880886.1               | EST_HUMAN                     | at18e08.x1 Barshead aorta HPLRB6 Homo sapiens cDNA clone IMAGE:2355586 3' similar to gb:M22995                                       |
| 8069                   | 22148                 |                   | 4.24                 | 1.0E-47                                       | AW684648.1               | EST_HUMAN                     | RAS-RELATED PROTEIN RAP-1A (HUMAN);  |
| 10584                  | 23599                 | 37205             | 2.26                 | 1.0E-47                                       | L30115.1                 | NT                            | h84811.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2978972 3' similar to gb:M26328 KERATIN, TYPE I CYTOSKELETAL 18 (HUMAN); |
| 1843                   | 14795                 | 27879             | 3.84                 | 9.0E-48                                       | AF223391.1               | NT                            | Papio hamadryas alcohol dehydrogenase class I (ADH1) gene, 5' region   |
| 3848                   | 16809                 | 29823             | 0.73                 | 9.0E-48                                       | BF359947.1               | EST_HUMAN                     | Homo sapiens calcium channel alpha1E subunit (CACNA1E) gene, exons 7-49, and partial cds, alternatively spliced                      |
| 5797                   | 18987                 | 32290             | 1.1                  | 9.0E-48                                       | BE88198.1                | EST_HUMAN                     | CN2-MT0100-310700-290-05 MT0100 Homo sapiens cDNA  |
| 5797                   | 18987                 | 32291             | 1.1                  | 9.0E-48                                       | BE88198.1                | EST_HUMAN                     | 601511714F1 NIH_MGC_71 Homo sapiens cDNA clone IMAGE:3913108 5'  |
| 6226                   | 19401                 | 32751             | 0.57                 | 9.0E-48                                       | A1833168.1               | EST_HUMAN                     | 601511714F1 NIH_MGC_71 Homo sapiens cDNA clone IMAGE:3913108 5'  |
| 6355                   | 19525                 | 32862             | 0.71                 | 9.0E-48                                       | AU123240.1               | EST_HUMAN                     | 601511714F1 NIH_MGC_71 Homo sapiens cDNA clone IMAGE:3913108 5'  |
| 11378                  | 24439                 | 36098             | 3.06                 | 9.0E-48                                       | BE333813.1               | EST_HUMAN                     | at75e09.x1 Barshead colon HPLRB7 Homo sapiens cDNA clone IMAGE:2377889 3' similar to TR:060844                                       |
| 1279                   | 14436                 |                   | 1.75                 | 8.0E-48                                       | 4501900                  | NT                            | O60844 HOMOLOG OF RAT ZMOGEN GRANULE MEMBRANE PROTEIN.;  |
| 1280                   | 14436                 |                   | 1.65                 | 8.0E-48                                       | 4501800                  | NT                            | AU123240 NT2RM1 Homo sapiens cDNA clone NT2RM1000978 5'  |
|                        |                       |                   |                      |   |                          |                               | 601310479F1 NIH_MGC_44 Homo sapiens cDNA clone IMAGE:3632083 5'  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens aminocyclase 1 (ACY1), mRNA   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens aminocyclase 1 (ACY1), mRNA   |
|                        |                       |                   |                      |   |                          |                               | Hk61b03.x1 NCI CGAP_Lym12 Homo sapiens cDNA clone IMAGE:3001133 3' similar to gb:X64707  |
| 3205                   | 16390                 | 29390             | 5.72                 | 8.0E-48                                       | AW788477.1               | EST_HUMAN                     | BREAST BASIC CONSERVED PROTEIN 1 (HUMAN);  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 3205                   | 16380                 | 29391             | 5.72                 | 8.0E-48                                       | AW769477.1               | EST_HUMAN                     | hK81b03.x1 NCI CGAP_Lym12 Homo sapiens cDNA clone IMAGE:3001133 3' similar to gb:364707  |
| 4041                   | 17197                 | 30208             | 0.66                 | 8.0E-48                                       | 4504116                  | NT                            | BREAST BASIC CONSERVED PROTEIN 1 (HUMAN);  |
| 503                    | 13698                 |                   | 2.68                 | 7.0E-48                                       | AB033036.1               | NT                            | Homo sapiens glutamate receptor, ionotropic, kainate 1 (GRIK1) mRNA  |
| 504                    | 13698                 |                   | 18.69                | 7.0E-48                                       | AB033036.1               | NT                            | Homo sapiens mRNA for KIAA1209 protein, partial cds  |
| 1527                   | 14680                 | 27761             | 1.96                 | 7.0E-48                                       | 6912719                  | NT                            | Homo sapiens mRNA for KIAA1209 protein, partial cds  |
| 1667                   | 14819                 | 27802             | 5.39                 | 7.0E-48                                       | 5730038                  | NT                            | Homo sapiens tousel-like kinase 1 (TLK1), mRNA   |
| 6685                   | 19843                 | 33233             | 24.01                | 7.0E-48                                       | 11416831                 | NT                            | Homo sapiens SET domain and methyltransferase fusion gene (SETMAR) mRNA  |
| 12125                  | 25105                 | 38809             | 2.98                 | 7.0E-48                                       | R19623.1                 | EST_HUMAN                     | Homo sapiens histidyl-tRNA synthetase (HARS), mRNA   |
| 3687                   | 16850                 | 29658             | 0.88                 | 8.0E-48                                       | A176111.1                | EST_HUMAN                     | y937b02.t1 Scores Infant brain IN18 Homo sapiens cDNA clone IMAGE:34747 5'   |
| 6183                   | 19359                 | 32707             | 0.84                 | 8.0E-48                                       | AB006955.1               | NT                            | w69h03.x1 NCI CGAP_Kid12 Homo sapiens cDNA clone IMAGE:2388613 3'  |
| 6924                   | 20239                 | 33674             | 0.93                 | 8.0E-48                                       | 11420995                 | NT                            | Homo sapiens mRNA for AIE-75, complete cds   |
| 7628                   | 25849                 | 34172             | 0.78                 | 8.0E-48                                       | AB046844.1               | NT                            | Homo sapiens BMX non-receptor tyrosine kinase (BMX), mRNA  |
| 7628                   | 25849                 | 34173             | 0.78                 | 8.0E-48                                       | AB046844.1               | NT                            | Homo sapiens mRNA for KIAA1624 protein, partial cds  |
| 9323                   | 22399                 | 35953             | 1.57                 | 8.0E-48                                       | AF026816.1               | NT                            | Homo sapiens mRNA for KIAA1624 protein, partial cds  |
| 9741                   | 22806                 | 36382             | 1.87                 | 8.0E-48                                       | 11427428                 | NT                            | Homo sapiens putative oncogene protein mRNA, partial cds   |
| 8690                   | 22830                 | 36514             | 2.84                 | 8.0E-48                                       | AA189080.1               | EST_HUMAN                     | Homo sapiens hypothetical protein FLJ11008 (FLJ11008), mRNA  |
| 3384                   | 18465                 | 29586             | 1.48                 | 5.0E-48                                       | 48268801                 | NT                            | zq45b06.s1 Stratagene hNT neuron (#837233) Homo sapiens cDNA clone IMAGE:632827 3' similar to contains Alu repetitive element; |
| 8774                   | 21853                 | 35395             | 1.04                 | 5.0E-48                                       | BE084410.1               | EST_HUMAN                     | Homo sapiens phosphodiesterase 1A, calmodulin-dependent (PDE1A) mRNA   |
| 2829                   | 15943                 | 29053             | 1.02                 | 4.0E-48                                       | R45715.1                 | EST_HUMAN                     | RC4-BT0311-141199-011-h06 BT0311 Homo sapiens cDNA   |
| 11200                  | 24269                 | 37605             | 3.11                 | 4.0E-48                                       | A1820420.1               | EST_HUMAN                     | He140-f Adult heart, Clontech Homo sapiens cDNA clone a140-f   |
| 12050                  | 25031                 | 38737             | 1.76                 | 4.0E-48                                       | BE084410.1               | EST_HUMAN                     | h47a02.x1 NCI CGAP_P128 Homo sapiens cDNA clone IMAGE:2254154 3'   |
| 1416                   | 14570                 | 27643             | 1.91                 | 3.0E-48                                       | AV690984.1               | EST_HUMAN                     | RC4-BT0311-141199-011-h06 BT0311 Homo sapiens cDNA   |
| 2032                   | 15173                 | 28282             | 31.61                | 3.0E-48                                       | 4885170                  | NT                            | AV690984 GKG Homo sapiens cDNA clone GKORE12 5'  |
| 2032                   | 15173                 | 28283             | 31.61                | 3.0E-48                                       | 4885170                  | NT                            | Homo sapiens chromosome X open reading frame 8 (CXORF8) mRNA   |
| 3505                   | 16672                 | 29682             | 0.93                 | 3.0E-48                                       | AF172453.1               | NT                            | Homo sapiens chromosome X open reading frame 8 (CXORF8) mRNA   |
| 3721                   | 16982                 | 29888             | 0.9                  | 3.0E-48                                       | AW664531.1               | EST_HUMAN                     | Homo sapiens opid growth factor receptor mRNA, complete cds  |
| 4362                   | 17505                 |                   | 0.93                 | 3.0E-48                                       | AA009541.1               | EST_HUMAN                     | h14b12.x1 NCI CGAP_GU1 Homo sapiens cDNA clone IMAGE:2872256 3' similar to SW-DCRB_HUMAN                                       |
| 6015                   | 19199                 | 32516             | 2.08                 | 3.0E-48                                       | BE084571.1               | EST_HUMAN                     | P65555 DOWN SYNDROME CRITICAL REGION PROTEIN B. ;  |
| 7159                   | 20232                 | 33735             | 1.07                 | 3.0E-48                                       | AF087913.1               | NT                            | 204003.t1 Scores_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:428844 5'   |
| 8585                   | 21668                 |                   | 3.73                 | 3.0E-48                                       | AA656930.1               | EST_HUMAN                     | MRA-BT0657-060400-201-a10 BT0657 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          | NT                            | Human endogenous retrovirus HERV-P-147D  |
|                        |                       |                   |                      |   |                          | EST_HUMAN                     | nv03f05.s1 NCI CGAP_PT22 Homo sapiens cDNA clone IMAGE:1219137 3' similar to contains PTR5.b1 PTR5 repetitive element ;        |

Page 308 of 550  
Table 4  
Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 11114                  | 24188                 | 37818             | 8.1                  | 3.0E-48                                       | BF514170.1               | EST_HUMAN                     | UHH-BW1-art-e-10-Q-UI.s1 NCI CGAP_Sub7 Homo sapiens cDNA clone IMAGE:3082287 3'   |
| 5                      | 13244                 | 26245             | 0.66                 | 2.0E-48                                       | AA465007.1               | EST_HUMAN                     | z60c03.1 Scores ovary tumor NihHOT Homo sapiens cDNA clone IMAGE:810052 5'  |
| 46                     | 13285                 | 26294             | 1.7                  | 2.0E-48                                       | AA631940.1               | EST_HUMAN                     | frnfc7 Regional genomic DNA specific cDNA library Homo sapiens cDNA clone CR17-26   |
| 4654                   | 17790                 | 30774             | 0.99                 | 2.0E-48                                       | BE240085.1               | EST_HUMAN                     | TCSAP-1D3842 Pediatric pre-B cell acute lymphoblastic leukemia Baylor-HGSC project=TCSA Homo sapiens cDNA clone TCSAP3842   |
| 5935                   | 19121                 | 32433             | 0.64                 | 2.0E-48                                       | AA613171.1               | EST_HUMAN                     | no18g01.s1 NCI CGAP_Phet1 Homo sapiens cDNA clone IMAGE:1101072 3'  |
| 5935                   | 19121                 | 32434             | 0.64                 | 2.0E-48                                       | AA613171.1               | EST_HUMAN                     | no18g01.s1 NCI CGAP_Phet1 Homo sapiens cDNA clone IMAGE:1101072 3'  |
| 7688                   | 20753                 | 34236             | 3.98                 | 2.0E-48                                       | AB040934.1               | NT                            | Homo sapiens mRNA for KIAA1501 protein, partial cds   |
| 7688                   | 20763                 | 34237             | 3.99                 | 2.0E-48                                       | AB040934.1               | NT                            | Homo sapiens mRNA for KIAA1501 protein, partial cds   |
| 7703                   | 20768                 | 34253             | 3.94                 | 2.0E-48                                       | 11496238                 | NT                            | Homo sapiens v-rel avian reticuloendotheliosis viral oncogene homolog A (nuclear factor of kappa light polypeptide gene enhancer in B-cells 3 (p65)) (RELA), mRNA |
| 8550                   | 21631                 | 35168             | 1.13                 | 2.0E-48                                       | AV743451.1               | EST_HUMAN                     | AV743451 CB Homo sapiens cDNA clone C8CGGG10 5'   |
| 12109                  | 25089                 |                   | 1.36                 | 2.0E-48                                       | AW291799.1               | EST_HUMAN                     | UI-H-B12-egl-b-11-Q-UI.s1 NCI CGAP_Sub4 Homo sapiens cDNA clone IMAGE:2724453 3'  |
| 12320                  | 13244                 | 26245             | 2.98                 | 2.0E-48                                       | AA465007.1               | EST_HUMAN                     | z60c03.1 Scores ovary tumor NihHOT Homo sapiens cDNA clone IMAGE:810052 5'  |
| 12674                  | 25090                 | 31771             | 1.25                 | 2.0E-48                                       | BE737154.1               | EST_HUMAN                     | 601305064F1 NIH_MGC_39 Homo sapiens cDNA clone IMAGE:3639782 5'   |
| 57                     | 13295                 | 26311             | 2.33                 | 1.0E-48                                       | 7706534                  | NT                            | Homo sapiens cisplatin resistance-associated overexpressed protein (LOC51747), mRNA   |
| 896                    | 14072                 | 27137             | 4.67                 | 1.0E-48                                       | 4502168                  | NT                            | Homo sapiens amyloid beta (A4) precursor protein (precursor protein (precursor protein) (APP), mRNA   |
| 1101                   | 14266                 | 27323             | 1.62                 | 1.0E-48                                       | 7657430                  | NT                            | Homo sapiens EBNA-2 co-activator (100kD) (p100), mRNA   |
| 1101                   | 14268                 | 27324             | 1.52                 | 1.0E-48                                       | 7657430                  | NT                            | Homo sapiens EBNA-2 co-activator (100kD) (p100), mRNA   |
| 1324                   | 14481                 | 27548             | 4.01                 | 1.0E-48                                       | 5032032                  | NT                            | Homo sapiens RNA binding motif protein 8 (RBM8) mRNA  |
| 1968                   | 15111                 | 28212             | 13.8                 | 1.0E-48                                       | AL163302.2               | NT                            | Homo sapiens chromosome 21 segment HS21C102   |
| 3577                   | 16742                 | 29759             | 0.94                 | 1.0E-48                                       | AL163246.2               | NT                            | Homo sapiens chromosome 21 segment HS21C046   |
| 5240                   | 18382                 | 31330             | 1.1                  | 1.0E-48                                       | M10978.1                 | NT                            | Human endogenous retroviral DNA (4-1), complete retroviral segment  |
| 6417                   | 19596                 | 32948             | 1.24                 | 1.0E-48                                       | AJ889077.1               | EST_HUMAN                     | td17c01.x1 NCI CGAP_Co16 Homo sapiens cDNA clone IMAGE:2075904 3' similar to TR-O14588 O14588   |
| 6417                   | 19596                 | 32949             | 1.24                 | 1.0E-48                                       | AJ889077.1               | EST_HUMAN                     | SIMILARITY TO U73941 ;  |
| 6628                   | 19798                 |                   | 0.87                 | 1.0E-48                                       | Y18000.1                 | NT                            | SIMILARITY TO U73941 ;  |
| 6727                   | 19883                 | 33274             | 0.59                 | 1.0E-48                                       | AB028994.1               | NT                            | Homo sapiens NF2 gene   |
| 6727                   | 19883                 | 33275             | 0.59                 | 1.0E-48                                       | AB028994.1               | NT                            | Homo sapiens mRNA for KIAA1071 protein, partial cds   |
| 7407                   | 20485                 | 33954             | 2.21                 | 1.0E-48                                       | 4755137                  | NT                            | Homo sapiens mRNA for KIAA1071 protein, partial cds   |
| 9031                   | 22110                 | 35651             | 0.65                 | 1.0E-48                                       | 4759695                  | NT                            | Homo sapiens huntingtin (Huntington disease) (HD) mRNA  |
| 9031                   | 22110                 | 35652             | 0.65                 | 1.0E-48                                       | 4759695                  | NT                            | Homo sapiens mitogen-activated protein kinase kinase 13 (MAP3K13), mRNA   |
| 9031                   | 22110                 | 35652             | 0.65                 | 1.0E-48                                       | 4759695                  | NT                            | Homo sapiens mitogen-activated protein kinase kinase 13 (MAP3K13), mRNA   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 9414                   | 22488                 | 36053             | 0.99                 | 1.0E-48                                       | 4502838                  | NT                            | Homo sapiens Chediak-Higashi syndrome 1 (CHS1) mRNA   |
| 9468                   | 22625                 | 36088             | 6.78                 | 1.0E-48                                       | AB033071.1               | NT                            | Homo sapiens mRNA for KIAA1245 protein, partial cds   |
| 9781                   | 22821                 | 36336             | 4.74                 | 1.0E-48                                       | BF304683.1               | EST_HUMAN                     | 80188808F1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:4122119 6'  |
| 10581                  | 23816                 | 37221             | 4.23                 | 1.0E-48                                       | 11429808                 | NT                            | Homo sapiens B cell linker protein (SLP65), mRNA  |
| 10581                  | 23816                 | 37222             | 4.23                 | 1.0E-48                                       | 11429808                 | NT                            | Homo sapiens B cell linker protein (SLP65), mRNA  |
| 12282                  | 26014                 |                   | 1.41                 | 1.0E-48                                       | W26785.1                 | EST_HUMAN                     | 15d8 Human retina cDNA randomly primed sublibrary Homo sapiens cDNA   |
| 2064                   | 15204                 | 28320             | 0.97                 | 8.0E-49                                       | AB026497.1               | NT                            | Mus musculus MyoPDZ mRNA for myosin containing PDZ domain, complete cds   |
| 6178                   | 19354                 | 32701             | 3.07                 | 8.0E-49                                       | 10048417                 | NT                            | Mus musculus T-box 20 (Tbx20), mRNA   |
| 6178                   | 19354                 | 32702             | 3.07                 | 8.0E-49                                       | 10048417                 | NT                            | Mus musculus T-box 20 (Tbx20), mRNA   |
| 8491                   | 21572                 | 35109             | 3.09                 | 8.0E-49                                       | U23850.1                 | NT                            | Homo sapiens gene for activin receptor type 1B, complete cds  |
| 10194                  | 23231                 | 36822             | 0.93                 | 8.0E-49                                       | AB008681.1               | NT                            | Homo sapiens gene for activin receptor type 1B, complete cds  |
| 11098                  | 24169                 | 37804             | 3.65                 | 8.0E-49                                       | AB22722.1                | EST_HUMAN                     | ts38d12.x1 NCI_CGAP_U14 Homo sapiens cDNA clone IMAGE:2230871 3' similar to contains Alu repetitive element; contains element PTR5 repetitive element   |
| 12097                  | 25077                 | 38785             | 2.08                 | 8.0E-49                                       | AA872183.1               | EST_HUMAN                     | cb78a03.s1 NCI_CGAP_GCB1 Homo sapiens cDNA clone IMAGE:1837462 3'   |
| 142                    | 13602                 | 26637             | 1.21                 | 7.0E-49                                       | 5729990                  | NT                            | Homo sapiens proteasome (prosome, macropain) 26S subunit, ATPase, 4 (PSMC4) mRNA  |
| 142                    | 13602                 | 26638             | 1.21                 | 7.0E-49                                       | 5729990                  | NT                            | Homo sapiens proteasome (prosome, macropain) 26S subunit, ATPase, 4 (PSMC4) mRNA  |
| 405                    | 13602                 | 26637             | 1.82                 | 7.0E-49                                       | 5729990                  | NT                            | Homo sapiens proteasome (prosome, macropain) 26S subunit, ATPase, 4 (PSMC4) mRNA  |
| 405                    | 13602                 | 26638             | 1.82                 | 7.0E-49                                       | 5729990                  | NT                            | Homo sapiens proteasome (prosome, macropain) 26S subunit, ATPase, 4 (PSMC4) mRNA  |
| 405                    | 13602                 | 26637             | 2.25                 | 7.0E-49                                       | 5729990                  | NT                            | Homo sapiens proteasome (prosome, macropain) 26S subunit, ATPase, 4 (PSMC4) mRNA  |
| 405                    | 13602                 | 26638             | 2.25                 | 7.0E-49                                       | 5729990                  | NT                            | Homo sapiens proteasome (prosome, macropain) 26S subunit, ATPase, 4 (PSMC4) mRNA  |
| 1248                   | 14407                 | 27459             | 4.37                 | 7.0E-49                                       | AL163284.2               | NT                            | Homo sapiens chromosome 21 segment HS21C084   |
| 4772                   | 17907                 | 30890             | 0.9                  | 7.0E-49                                       | CG0811                   | SWISSPROT                     | HYPOTHETICAL PROTEIN DJ845Q24.3   |
| 5578                   | 18771                 | 31815             | 2.33                 | 7.0E-49                                       | AB07191.1                | EST_HUMAN                     | wf25i04.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2356663 3' similar to TR:O54823  |
| 5586                   | 18781                 | 31828             | 1.3                  | 7.0E-49                                       | AL120937.1               | EST_HUMAN                     | O54823 RSEC15.1   |
| 5926                   | 18771                 | 31815             | 0.78                 | 7.0E-49                                       | AB07191.1                | EST_HUMAN                     | DKFZp762C033_s1 762 (synonym: hme2) Homo sapiens cDNA clone DKFZp762C033 3'   |
| 202                    | 13425                 | 26456             | 20.33                | 6.0E-49                                       | AW731740.1               | EST_HUMAN                     | wf25i04.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2356663 3' similar to TR:O54823  |
| 4231                   | 17378                 | 30367             | 0.84                 | 6.0E-49                                       | AL162091.1               | EST_HUMAN                     | O54823 RSEC15.1   |
| 5954                   | 19140                 | 32456             | 0.84                 | 6.0E-49                                       | AW511225.1               | EST_HUMAN                     | b55g05.x1 NIH_MGC_10 Homo sapiens cDNA clone IMAGE:2800504 3' similar to gb:U17208 40S RIBOSOMAL PROTEIN S4 (HUMAN); gb:M20632 Mouse LLRep3 protein mRNA from a repetitive element, complete (MOUSE); |
| 6572                   | 19734                 | 33113             | 1.27                 | 6.0E-49                                       | AB140742.1               | EST_HUMAN                     | DKFZp761A138_s1 761 (synonym: harny2) Homo sapiens cDNA clone DKFZp761A138 3'   |
|                        |                       |                   |                      |   |                          |                               | h444602.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2912378 3' similar to TR:O56636  |
|                        |                       |                   |                      |   |                          |                               | O56636 CAMP-REGULATED GUANINE NUCLEOTIDE EXCHANGE FACTOR II. ;  |
|                        |                       |                   |                      |   |                          |                               | AU140742 PLACE4 Homo sapiens cDNA clone PLACE4000148 5'   |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 11557                  | 24812                 | 38291             | 3.39                 | 6.0E-49                                       | AW452218.1               | EST_HUMAN                     | UHH-B13-abc-e-05-O-U1.s1 NCI_CGAP_Sub55 Homo sapiens cDNA clone IMAGE:3069048 3'                       |
| 11961                  | 24946                 | 38650             | 2.48                 | 6.0E-49                                       | AA386556.1               | EST_HUMAN                     | EST77525 Pancreas tumor III Homo sapiens cDNA 5' end   |
| 11961                  | 24946                 | 38651             | 2.48                 | 6.0E-49                                       | AA386556.1               | EST_HUMAN                     | EST77525 Pancreas tumor III Homo sapiens cDNA 5' end   |
| 12670                  | 25897                 |                   | 10.54                | 6.0E-49                                       | AA707657.1               | EST_HUMAN                     | z29cd08.s1 Soares_fetal_liver_spleen_INFLS_S1 Homo sapiens cDNA clone IMAGE:451694 3'                  |
| 730                    | 13912                 | 26951             | 5.84                 | 5.0E-49                                       | AL163210.2               | NT                            | Homo sapiens chromosome 21 segment HS21C010  |
| 730                    | 13912                 | 26952             | 5.84                 | 5.0E-49                                       | AL163210.2               | NT                            | Homo sapiens chromosome 21 segment HS21C010  |
| 1838                   | 14983                 | 28082             | 10.18                | 6.0E-49                                       | AA172121.1               | EST_HUMAN                     | z29cd07.r1 Stratagene neuroepithelium (#837231) Homo sapiens cDNA clone IMAGE:610860 5' similar to     |
| 2808                   | 15922                 | 28032             | 7.1                  | 5.0E-49                                       | U17714.1                 | NT                            | TR:G233228 G233228 RTV-H PROTEIN, contains LTR7.13 LTR7 LTR7 repetitive element ;                      |
| 3348                   | 18519                 | 29533             | 7.59                 | 5.0E-49                                       | 11436355                 | NT                            | Homo sapiens putative tumor suppressor ST13 (ST13) mRNA, complete cds                                  |
| 538                    | 19791                 | 28754             | 28.39                | 4.0E-49                                       | AW189533.1               | EST_HUMAN                     | Homo sapiens similar to ribosomal protein S27 (metalloproteinin 1) (H. sapiens) (LOC633682), mRNA      |
| 7395                   | 20473                 | 33939             | 0.96                 | 4.0E-49                                       | Z26934.2                 | NT                            | X08607.x1 NCI_CGAP_U4 Homo sapiens cDNA clone IMAGE:28756583 3' similar to WP-B0350.2B                 |
| 7395                   | 20473                 | 33940             | 0.96                 | 4.0E-49                                       | Z26934.2                 | NT                            | CE06703 ;  |
| 7422                   | 20489                 | 33970             | 0.88                 | 4.0E-49                                       | 11525737                 | NT                            | Homo sapiens mRNA for ankryrin B (440 kDa)   |
| 7422                   | 20489                 | 33971             | 0.88                 | 4.0E-49                                       | 11525737                 | NT                            | Homo sapiens mRNA for ankryrin B (440 kDa)   |
| 7992                   | 21042                 | 34554             | 0.89                 | 4.0E-49                                       | 7662209                  | NT                            | Homo sapiens UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylglucosaminyltransferase 8          |
| 9065                   | 22144                 | 35690             | 0.47                 | 4.0E-49                                       | 11425374                 | NT                            | (GalNAc-T8) (GALNT8), mRNA   |
| 9065                   | 22144                 | 35691             | 0.47                 | 4.0E-49                                       | 11425374                 | NT                            | (GalNAc-T8) (GALNT8), mRNA   |
| 12514                  | 26145                 |                   | 2.74                 | 4.0E-49                                       | AA210798.1               | EST_HUMAN                     | Homo sapiens UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylglucosaminyltransferase 8          |
| 12615                  | 25413                 |                   | 2.93                 | 4.0E-49                                       | AF240788.1               | NT                            | (GalNAc-T8) (GALNT8), mRNA   |
| 574                    | 13796                 | 26789             | 0.91                 | 3.0E-49                                       | X68968.1                 | NT                            | Homo sapiens KIAA0623 gene product (KIAA0623), mRNA  |
| 2713                   | 15831                 |                   | 2.73                 | 3.0E-49                                       | AA016131.1               | EST_HUMAN                     | Homo sapiens copine III (CPNE3), mRNA  |
| 5098                   | 18228                 | 31198             | 2.68                 | 3.0E-49                                       | U46899.1                 | NT                            | Homo sapiens copine III (CPNE3), mRNA  |
| 7577                   | 20649                 | 34127             | 0.83                 | 3.0E-49                                       | H39479.1                 | EST_HUMAN                     | Homo sapiens glutathione S-transferase theta 2 (GSTT2) and glutathione S-transferase theta 1 (GSTT1)   |
| 11582                  | 24636                 | 38316             | 1.41                 | 3.0E-49                                       | AA393766.1               | EST_HUMAN                     | genes, complete cds  |
| 678                    | 13894                 |                   | 1.93                 | 2.0E-49                                       | BE165980.1               | EST_HUMAN                     | H. sapiens mRNA for acetyl-CoA carboxylase   |
| 3294                   | 16483                 | 29487             | 1.15                 | 2.0E-49                                       | N26448.1                 | EST_HUMAN                     | z631c05.r1 Soares retina N2b-4-IR Homo sapiens cDNA clone IMAGE:380584 5' similar to contains L1.13 L1 |
|                        |                       |                   |                      |   |                          |                               | repetitive element ;   |
|                        |                       |                   |                      |   |                          |                               | Human type IV collagen (COL4A6) gene, exon 40  |
|                        |                       |                   |                      |   |                          |                               | EST25612 WATM1 Homo sapiens cDNA clone 25e12   |
|                        |                       |                   |                      |   |                          |                               | EST42572 Endometrial tumor Homo sapiens cDNA 5' end  |
|                        |                       |                   |                      |   |                          |                               | MR3-HT0487-150200-113-g01 HT0487 Homo sapiens cDNA   |
|                        |                       |                   |                      |   |                          |                               | yz23cd06.r1 Soares melanocyte 2Nbl-H Homo sapiens cDNA clone IMAGE:262571 5'                           |

Page 311 of 550  
Table 4  
Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit<br>Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|-----------------------------|-------------------------------|---|
| 3659                   | 18822                 | 28832             | 0.86                 | 2.0E-49                                       | AF028564.1                  | NT                            | Homo sapiens RNA binding protein II (RBMII) gene, complete cds  |
| 6876                   | 20027                 | 33437             | 1.2                  | 2.0E-49                                       | AV717088.1                  | EST_HUMAN                     | AV717088 DCB Homo sapiens cDNA clone DCBALB01 5'  |
| 8291                   | 21373                 |                   | 1.87                 | 2.0E-49                                       | M86033.1                    | EST_HUMAN                     | EST025588 Fetal brain, Stratiogene (cat#8603208) Homo sapiens cDNA clone HFBCY60  |
| 12626                  | 26008                 |                   | 2.69                 | 2.0E-49                                       | AF163864.1                  | NT                            | Homo sapiens SNCA isoform (SNCA) gene, complete cds, alternatively spliced  |
| 922                    | 14097                 |                   | 9.1                  | 1.0E-49                                       | BF035327.1                  | EST_HUMAN                     | 601458531F1 NIH_MGC 66 Homo sapiens cDNA clone IMAGE:3862086 5'   |
| 1584                   | 14738                 | 27816             | 73.58                | 1.0E-49                                       | 4557887                     | NT                            | Homo sapiens keratin 18 (KRT18) mRNA  |
| 1844                   | 14990                 | 28091             | 2.93                 | 1.0E-49                                       | BE255216.1                  | EST_HUMAN                     | 601115769F1 NIH_MGC_18 Homo sapiens cDNA clone IMAGE:3366273 5'   |
| 5476                   | 18074                 | 31989             | 4.68                 | 1.0E-49                                       | BF131007.1                  | EST_HUMAN                     | 601820053F1 NIH_MGC_58 Homo sapiens cDNA clone IMAGE:4052052 5'   |
| 6202                   | 19377                 | 32728             | 0.85                 | 1.0E-49                                       | H16291.1                    | EST_HUMAN                     | Yv48h04.r1 Soares adult brain N2b5H1855Y Homo sapiens cDNA clone IMAGE:171703 5' similar to SP:GBG1_HUMAN Q08447 GUANINE NUCLEOTIDE-BINDING PROTEIN (G) GAMMA-1 SUBUNIT ; |
| 6208                   | 19883                 | 32793             | 1.09                 | 1.0E-49                                       | AW984940.1                  | EST_HUMAN                     | EST376713 IMAGE resequences, MAGH Homo sapiens cDNA   |
| 7372                   | 20451                 | 33916             | 2.78                 | 1.0E-49                                       | BE398110.1                  | EST_HUMAN                     | 601280330F1 NIH_MGC 8 Homo sapiens cDNA clone IMAGE:3620863 5'  |
| 7372                   | 20451                 | 33916             | 2.78                 | 1.0E-49                                       | BE398110.1                  | EST_HUMAN                     | 601280330F1 NIH_MGC_8 Homo sapiens cDNA clone IMAGE:3620863 5'  |
| 7453                   | 20530                 | 34003             | 2.09                 | 1.0E-49                                       | N25884.1                    | EST_HUMAN                     | Yv78g12.s1 Soares placenta_8b9weeks_2NbhHP8b9W Homo sapiens cDNA clone IMAGE:258406 3' similar to gp:X65873 KINESIN HEAVY CHAIN (HUMAN);                                  |
| 7453                   | 20530                 | 34004             | 2.09                 | 1.0E-49                                       | N25884.1                    | EST_HUMAN                     | Yv78g12.s1 Soares placenta_8b9weeks_2NbhHP8b9W Homo sapiens cDNA clone IMAGE:258406 3' similar to gp:X65873 KINESIN HEAVY CHAIN (HUMAN);                                  |
| 8874                   | 21953                 |                   | 0.71                 | 1.0E-49                                       | 9994184                     | NT                            | Homo sapiens RNA binding motif protein 7 (LOC51120). mRNA   |
| 9183                   | 22271                 | 35809             | 1.48                 | 1.0E-49                                       | BE408340.1                  | EST_HUMAN                     | 601300982F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3635398 5'   |
| 10331                  | 23366                 | 36975             | 1.23                 | 1.0E-49                                       | AL043129.2                  | EST_HUMAN                     | DKFZp434D2423.J1 434 (synonym: htrss3) Homo sapiens cDNA clone DKFZp434D2423 5'   |
| 11304                  | 24369                 | 38010             | 1.32                 | 1.0E-49                                       | AV751477.1                  | EST_HUMAN                     | AV751477 NPD Homo sapiens cDNA clone NPDRAWED4 5'   |
| 11580                  | 24843                 | 38326             | 2.91                 | 1.0E-49                                       | 11427366                    | NT                            | Homo sapiens brefeldin A-inhibited guanine nucleotide-exchange protein 1 (BIG1), mRNA   |
| 12148                  | 25119                 |                   | 1.28                 | 1.0E-49                                       | BE168343.1                  | EST_HUMAN                     | MRO-H10407-010200-006-02 HT0407 Homo sapiens cDNA   |
| 12508                  | 25349                 |                   | 1.82                 | 1.0E-49                                       | 11418322                    | NT                            | Homo sapiens cadherin EGF LAG seven-pass G-type receptor 1 (CELSR1), mRNA   |
| 5109                   | 18237                 |                   | 0.92                 | 9.0E-50                                       | AF101475.1                  | NT                            | Homo sapiens glycine N-methyltransferase (GNMT) gene, complete cds  |
| 6834                   | 26215                 |                   | 0.63                 | 9.0E-50                                       | BE265758.1                  | EST_HUMAN                     | 601176250F1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:3531588 5'   |
| 174                    | 13398                 | 26426             | 4.18                 | 8.0E-50                                       | AL163202.2                  | NT                            | Homo sapiens chromosome 21 segment HS21C002   |
| 737                    | 13919                 | 26959             | 1.92                 | 8.0E-50                                       | X95097.2                    | NT                            | Homo sapiens mRNA for VIP receptor 2  |
| 737                    | 13919                 | 26960             | 1.92                 | 8.0E-50                                       | X95097.2                    | NT                            | Homo sapiens mRNA for VIP receptor 2  |
| 1803                   | 14932                 | 28049             | 4.32                 | 8.0E-50                                       | 4601890                     | NT                            | Homo sapiens actinin, alpha 1 (ACTN1), mRNA   |
| 2552                   | 15677                 | 28900             | 1.05                 | 8.0E-50                                       | 7708394                     | NT                            | Homo sapiens p47 (LOC51674), mRNA   |
| 2552                   | 15677                 | 28801             | 1.05                 | 8.0E-50                                       | 7708394                     | NT                            | Homo sapiens p47 (LOC51674), mRNA   |
| 2764                   | 15979                 | 28988             | 2.42                 | 8.0E-50                                       | 4828658                     | NT                            | Homo sapiens capping protein (actin filament) muscle Z-line, beta (CAPZB), mRNA   |
| 2881                   | 15160                 |                   | 2.67                 | 8.0E-50                                       | D80334.1                    | NT                            | Homo sapiens hepatocyte growth factor (HGF) gene, exon 18   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 634                    | 13819                 | 26843             | 1.07                 | 7.0E-50                                       | BE089591.1               | EST_HUMAN                     | QV0-BT0703-280400-211-e08 BT0703 Homo sapiens cDNA   |
| 6923                   | 20238                 | 33672             | 0.73                 | 7.0E-50                                       | BF091922.1               | EST_HUMAN                     | RC8-TN0073-150900-011-A12 TN0073 Homo sapiens cDNA   |
| 6923                   | 20238                 | 33673             | 0.73                 | 7.0E-50                                       | BF091922.1               | EST_HUMAN                     | RC8-TN0073-150900-011-A12 TN0073 Homo sapiens cDNA   |
| 7457                   | 20533                 | 34008             | 0.74                 | 7.0E-50                                       | AA627622.1               | EST_HUMAN                     | nc69a12.s1 NCI CGAP C69 Homo sapiens cDNA clone IMAGE:1148206 3' similar to gb:U66391 60S  |
| 10993                  | 24072                 | 37705             | 23.18                | 7.0E-50                                       | AI872137.1               | EST_HUMAN                     | RIBOSOMAL PROTEIN L6 (HUMAN);  |
| 4482                   | 17602                 |                   | 0.67                 | 6.0E-50                                       | BE794381.1               | EST_HUMAN                     | nm55g11.x1 NCI CGAP U12 Homo sapiens cDNA clone IMAGE:2439908 3'   |
| 8408                   | 21489                 |                   | 3.28                 | 6.0E-50                                       | BE044078.1               | EST_HUMAN                     | 60159855F1 NIH_MGC 7 Homo sapiens cDNA clone IMAGE:3943577 5'  |
| 11053                  | 24130                 | 37765             | 3.32                 | 6.0E-50                                       | AA312078.1               | EST_HUMAN                     | nc39h04.x1 NCI CGAP U11 Homo sapiens cDNA clone IMAGE:3039511 3' similar to contains MER29.k3  |
| 11053                  | 24130                 | 37766             | 3.32                 | 6.0E-50                                       | AA312078.1               | EST_HUMAN                     | MER29 repetitive element;  |
| 1835                   | 14982                 | 28080             | 1.34                 | 5.0E-50                                       | BF332638.1               | EST_HUMAN                     | EST182775 Jurkat T-cells VI Homo sapiens cDNA 5' end   |
| 1835                   | 14982                 | 28081             | 1.34                 | 5.0E-50                                       | BF332638.1               | EST_HUMAN                     | EST182776 Jurkat T-cells VI Homo sapiens cDNA 5' end   |
| 8284                   | 22370                 |                   | 5.27                 | 5.0E-50                                       | AA567683.1               | EST_HUMAN                     | CM0-BT0782-300500-398-b05 BT0782 Homo sapiens cDNA   |
| 12080                  | 25070                 | 38777             | 1.78                 | 5.0E-50                                       | AA403053.1               | EST_HUMAN                     | CM0-BT0782-300500-398-b05 BT0782 Homo sapiens cDNA   |
| 940                    | 14114                 |                   | 2.31                 | 4.0E-50                                       | AA601143.1               | EST_HUMAN                     | nm5h10.s1 NCI CGAP P14 Homo sapiens cDNA clone IMAGE:1043983 similar to contains PTR5.13 PTR5  |
| 3336                   | 16701                 | 29712             | 2.08                 | 4.0E-50                                       | AL163248.2               | NT                            | repetitive element;  |
| 6491                   | 19557                 | 33020             | 0.92                 | 4.0E-50                                       | 11440683                 | NT                            | z62b01.11 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:728888 5' similar to TR:G1335769   |
| 7388                   | 20481                 | 33624             | 1.02                 | 4.0E-50                                       | BE087636.1               | EST_HUMAN                     | G1335769 GAG-POL POLYPROTEIN.;   |
| 1992                   | 15134                 |                   | 9.4                  | 3.0E-50                                       | M18048.1                 | NT                            | nc64e09.s1 NCI CGAP SS1 Homo sapiens cDNA clone IMAGE:1104520 3' similar to gb:U63741_maf1   |
| 3371                   | 16543                 | 29557             | 0.92                 | 3.0E-50                                       | AA736142.1               | EST_HUMAN                     | FIBULIN-1, ISOFORM A PRECURSOR (HUMAN);  |
| 3846                   | 17006                 | 30008             | 0.9                  | 3.0E-50                                       | AW755254.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C048  |
| 6815                   | 19908                 | 33374             | 0.88                 | 3.0E-50                                       | 11419317                 | NT                            | Homo sapiens cystathionine synthetase (CAPS), mRNA   |
| 6815                   | 19908                 | 33375             | 0.88                 | 3.0E-50                                       | 11419317                 | NT                            | QV1-BT0681-280300-127-f12 BT0681 Homo sapiens cDNA   |
| 6804                   | 20219                 | 33648             | 1.71                 | 3.0E-50                                       | 11421514                 | NT                            | Human endogenous retrovirus RTVL-H2  |
| 7822                   | 20877                 | 34376             | 5                    | 3.0E-50                                       | AF233436.2               | NT                            | Q60306.s1 NCI CGAP JG03 Homo sapiens cDNA clone IMAGE:1322827 3'   |
| 7822                   | 20877                 | 34377             | 5                    | 3.0E-50                                       | AF233436.2               | NT                            | Human endogenous retrovirus RTVL-H2  |
|                        |                       |                   |                      |   |                          |                               | CMYA5 Human cardiac muscle expression library Homo sapiens cDNA clone 4151835 similar to CMYA5   |
|                        |                       |                   |                      |   |                          |                               | Cardiomyopathy associated gene 5   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens protein tyrosine phosphatase, non-receptor type 12 (PTPN12), mRNA   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens protein tyrosine phosphatase, non-receptor type 12 (PTPN12), mRNA   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens similar to semaphorin domain, immunoglobulin domain (Ig), short basic domain, secreted, (semaphorin) 3A (H. sapiens) (LOC88322), mRNA |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens FYVE domain-containing dual specificity protein phosphatase FYVE-DSP1a mRNA, complete cds   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens FYVE domain-containing dual specificity protein phosphatase FYVE-DSP1a mRNA, complete cds   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 8782                   | 21861                 | 35404             | 0.68                 | 3.0E-50                                       | 6601589                  | NT                            | Homo sapiens ankyrin-like with transmembrane domains 1 (ANKTM1), mRNA                        |
| 10023                  | 23061                 | 36657             | 1.08                 | 3.0E-50                                       | AB046818.1               | NT                            | Homo sapiens mRNA for KIAA1598 protein, partial cds  |
| 10032                  | 23070                 | 36670             | 1.03                 | 3.0E-50                                       | 11418514                 | NT                            | Homo sapiens t-complex 10 (a murine top homolog) (TCP10), mRNA                               |
| 10737                  | 23770                 | 37380             | 1.04                 | 3.0E-50                                       | AB002297.1               | NT                            | Homo sapiens KIAA0299 gene, partial cds  |
| 11364                  | 24425                 | 38080             | 1.51                 | 3.0E-50                                       | 11436955                 | NT                            | Homo sapiens Grib2-associated binder 2 (KIAA0571), mRNA                                      |
| 11752                  | 23938                 | 37564             | 8.19                 | 3.0E-50                                       | AJ245621.1               | NT                            | Homo sapiens CTL2 gene   |
| 13217                  | 25782                 | 31822             | 1.35                 | 3.0E-50                                       | AB011399.1               | NT                            | Homo sapiens gene for AF-8, complete cds   |
| 789                    | 13978                 |                   | 7.84                 | 2.0E-50                                       | AF055096.1               | NT                            | Homo sapiens MHC class 1 region  |
| 1104                   | 14269                 | 27327             | 6.16                 | 2.0E-50                                       | 4557752                  | NT                            | Homo sapiens midline 1 (Optic/BBB syndrome) (MID1) mRNA                                      |
| 1474                   | 14827                 | 27713             | 33.77                | 2.0E-50                                       | AF198303.1               | NT                            | Homo sapiens decorin D mRNA, complete cds, alternatively spliced                             |
| 4376                   | 17519                 | 30498             | 0.75                 | 2.0E-50                                       | D88424.1                 | NT                            | Mus musculus mRNA for high-sulfur keratin protein, partial cds                               |
| 5329                   | 18442                 | 31412             | 1.37                 | 2.0E-50                                       | AB016319.1               | NT                            | Homo sapiens mRNA for KIAA0776 protein, partial cds  |
| 7007                   | 20143                 | 33562             | 0.61                 | 2.0E-50                                       | AU124065.1               | EST_HUMAN                     | AU124065 NT2RM2 Homo sapiens cDNA clone NT2RM2001609 5'                                      |
| 8511                   | 21592                 | 35126             | 1.03                 | 2.0E-50                                       | AB033162.1               | NT                            | Homo sapiens TFF gene cluster for trefoil factor, complete cds                               |
| 8511                   | 21592                 | 35127             | 1.03                 | 2.0E-50                                       | AB033162.1               | NT                            | Homo sapiens TFF gene cluster for trefoil factor, complete cds                               |
| 8650                   | 21730                 | 35208             | 7.21                 | 2.0E-50                                       | X06958.1                 | NT                            | Human HALPHA44 gene for alpha-tubulin, exons 1-3   |
| 8650                   | 21730                 | 35209             | 7.21                 | 2.0E-50                                       | X06958.1                 | NT                            | Human HALPHA44 gene for alpha-tubulin, exons 1-3   |
| 10088                  | 23128                 | 36728             | 1.8                  | 2.0E-50                                       | 9910293                  | NT                            | Mus musculus keratin complex 2, gene 6g (Krt2-6g), mRNA                                      |
| 10088                  | 23128                 | 36729             | 1.6                  | 2.0E-50                                       | 9910293                  | NT                            | Mus musculus keratin complex 2, gene 6g (Krt2-6g), mRNA                                      |
| 11960                  | 24945                 |                   | 1.39                 | 2.0E-50                                       | AF023861.1               | NT                            | Macaca mulatta cyclophilin A mRNA, complete cds  |
| 474                    | 13069                 | 26701             | 2.17                 | 1.0E-50                                       | AL183209.2               | NT                            | Homo sapiens chromosome 21 segment HS21C009  |
| 2438                   | 15566                 |                   | 10.11                | 1.0E-50                                       | AJ271735.1               | NT                            | Homo sapiens Xq pseudautosomal region; segment 1/2   |
| 10396                  | 23431                 | 37038             | 1.65                 | 1.0E-50                                       | D11078.1                 | NT                            | Homo sapiens RGH2 gene, retrovirus-like element  |
| 6104                   | 19284                 | 32817             | 1.04                 | 9.0E-51                                       | AW511225.1               | EST_HUMAN                     | h444602.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2912378 3' similar to TR:O65636 |
| 6354                   | 19324                 | 32881             | 0.58                 | 9.0E-51                                       | AA744837.1               | EST_HUMAN                     | O65636 CAMP-REGULATED GUANINE NUCLEOTIDE EXCHANGE FACTOR II ;                                |
| 8872                   | 21951                 | 35487             | 0.7                  | 9.0E-51                                       | AJ791154.1               | EST_HUMAN                     | ny67N03.s1 NCI CGAP_GCB1 Homo sapiens cDNA clone IMAGE:1283381 3'                            |
| 9525                   | 22990                 | 36161             | 1.29                 | 9.0E-51                                       | AA043793.1               | EST_HUMAN                     | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
| 9700                   | 22749                 | 36317             | 0.68                 | 9.0E-51                                       | AJ791154.1               | EST_HUMAN                     | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
| 9700                   | 22749                 | 36318             | 0.68                 | 9.0E-51                                       | AJ791154.1               | EST_HUMAN                     | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:466362 5'                 |
| 11764                  | 23950                 | 37579             | 1.97                 | 9.0E-51                                       | H88078.1                 | EST_HUMAN                     | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |
|                        |                       |                   |                      |   |                          |                               | SW_PSM_HUMAN Q04609 PROSTATE-SPECIFIC MEMBRANE ANTIGEN ;                                     |
|                        |                       |                   |                      |   |                          |                               | ab23g04.x5 Stratagene lung (#837210) Homo sapiens cDNA clone IMAGE:841686 3' similar to      |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 11764                  | 23950                 | 37580             | 1.97                 | 8.0E-51                                       | H83078.1                 | EST_HUMAN                     | yw24g06.t1 Morton Fetal Cochlea Homo sapiens cDNA clone IMAGE:253210 5'  |
| 12069                  | 25050                 | 38768             | 1.84                 | 9.0E-51                                       | AA885514.1               | EST_HUMAN                     | am10h02.s1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:1488451 3' similar to SW:CAYP_CANFA P10463 CALCIOPHOSINE ;                      |
| 4559                   | 17697                 | 30677             | 1.11                 | 8.0E-51                                       | 4503832                  | NT                            | Homo sapiens glycine amidinotransferase (L-arginine:glycine amidinotransferase) (GATM) mRNA  |
| 4559                   | 17697                 | 30678             | 1.11                 | 8.0E-51                                       | 4503832                  | NT                            | Homo sapiens glycine amidinotransferase (L-arginine:glycine amidinotransferase) (GATM) mRNA  |
| 4690                   | 17825                 | 30812             | 5.38                 | 8.0E-51                                       | AA610942.1               | EST_HUMAN                     | np88g09.s1 NCI CGAP_Lu1 Homo sapiens cDNA clone IMAGE:1142440 3' similar to gbX12871_mn1 HETEROGENEOUS NUCLEAR RIBONUCLEOPROTEIN A1 (HUMAN); |
| 7321                   | 20403                 | 33866             | 0.71                 | 8.0E-51                                       | AF064254.1               | NT                            | Homo sapiens very long-chain acyl-CoA synthetase homolog 1 mRNA, complete cds  |
| 7830                   | 20895                 | 34387             | 2.11                 | 8.0E-51                                       | 11439587                 | NT                            | Homo sapiens PDZ-73 protein (PDZ-73/NY-CO-38), mRNA  |
| 8664                   | 22626                 | 34987             | 1.05                 | 8.0E-51                                       | AU138590.1               | EST_HUMAN                     | AU138590 PLACE1 Homo sapiens cDNA clone PLACE1008887 5'  |
| 3354                   | 16528                 | 29541             | 1.27                 | 7.0E-51                                       | AW889219.1               | EST_HUMAN                     | QV4-NT0028-200400-180-d05 NT0028 Homo sapiens cDNA   |
| 3447                   | 16815                 | 29633             | 0.82                 | 7.0E-51                                       | AW274720.1               | EST_HUMAN                     | xa34a03.x1 NCI CGAP_Jd11 Homo sapiens cDNA clone IMAGE:2695564 3' similar to TRC82340  |
| 4282                   | 17427                 | 30416             | 1.37                 | 7.0E-51                                       | AL078628.1               | EST_HUMAN                     | C82340 A TYPICAL PKC SPECIFIC BINDING PROTEIN. ;   |
| 4282                   | 17427                 | 30417             | 1.37                 | 7.0E-51                                       | AL078628.1               | EST_HUMAN                     | DKFZp434B2229_j1 434 (synonym: htes3) Homo sapiens cDNA clone DKFZp434B2229 5'   |
| 4375                   | 17518                 | 30498             | 1.18                 | 7.0E-51                                       | 11421995                 | NT                            | DKFZp434B2229_j1 434 (synonym: htes3) Homo sapiens cDNA clone DKFZp434B2229 5'   |
| 4471                   | 17611                 | 30588             | 1.44                 | 7.0E-51                                       | AW285603.1               | EST_HUMAN                     | Homo sapiens immunoglobulin superfamily, member 3 (IGSF3), mRNA  |
| 11985                  | 24970                 | 36674             | 1.36                 | 7.0E-51                                       | AF161449.1               | NT                            | U1-H-81W0-8p-b-05-QJ1.s1 NCI CGAP_Sub86 Homo sapiens cDNA clone IMAGE:2729817 3'   |
| 1557                   | 14710                 | 27790             | 0.94                 | 6.0E-51                                       | 6878763                  | NT                            | Homo sapiens putative DNA binding protein (M98), mRNA  |
| 2036                   | 15177                 | 28267             | 5.83                 | 6.0E-51                                       | 7657288                  | NT                            | Homo sapiens KIAA0828 protein Misc2 interacting nuclear target (MINT) homolog (KIAA0828), mRNA   |
| 3592                   | 16727                 | 28743             | 14.85                | 6.0E-51                                       | 7657288                  | NT                            | Homo sapiens KIAA0828 protein Misc2 interacting nuclear target (MINT) homolog (KIAA0828), mRNA   |
| 4426                   | 17588                 | 30547             | 0.66                 | 6.0E-51                                       | 8910553                  | NT                            | Homo sapiens solute carrier family 2 (facilitated glucose transporter), member 8 (SLC2A8), mRNA  |
| 4426                   | 17588                 | 30548             | 0.66                 | 6.0E-51                                       | 8910553                  | NT                            | Homo sapiens solute carrier family 2 (facilitated glucose transporter), member 8 (SLC2A8), mRNA  |
| 6113                   | 19293                 | 32628             | 1.48                 | 6.0E-51                                       | X01788.1                 | NT                            | Human hemoglobin related (Hpr) gene exon 3   |
| 6124                   | 19303                 | 32642             | 8.16                 | 6.0E-51                                       | AF070083.1               | NT                            | Homo sapiens mitogen-activated protein kinase kinase 1 (MKK4) gene, exon 4   |
| 6124                   | 19303                 | 32643             | 8.16                 | 6.0E-51                                       | AF070083.1               | NT                            | Homo sapiens mitogen-activated protein kinase kinase 1 (MKK4) gene, exon 4   |
| 6800                   | 20215                 | 33845             | 0.93                 | 6.0E-51                                       | 4506738                  | NT                            | Homo sapiens ribosomal protein S6 kinase, 70kD, polypeptide 1 (RPS6KB1) mRNA   |
| 7032                   | 20168                 | 33590             | 0.82                 | 6.0E-51                                       | 11416761                 | NT                            | Homo sapiens non-kinase Cdc42 effector protein SPEC2 (LOC66800), mRNA  |
| 7104                   | 18531                 | 31486             | 2.15                 | 6.0E-51                                       | 11426566                 | NT                            | Homo sapiens carnal cell adhesion molecule (LOC51148), mRNA  |
| 9337                   | 22413                 | 35985             | 0.69                 | 6.0E-51                                       | 11426525                 | NT                            | Homo sapiens hypothetical protein FLJ11042 (FLJ11042), mRNA  |
| 9337                   | 22413                 | 35986             | 0.69                 | 6.0E-51                                       | 11426525                 | NT                            | Homo sapiens hypothetical protein FLJ11042 (FLJ11042), mRNA  |
| 9885                   | 22925                 | 36508             | 2.05                 | 6.0E-51                                       | 7681535                  | NT                            | Homo sapiens B9 protein (B9), mRNA   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 9964                   | 23003                 | 36508             | 0.79                 | 6.0E-51                                       | U50083.1                 | NT                            | Human ankyrin (ANK1) gene, exon 2  |
| 11534                  | 24590                 | 38265             | 1.84                 | 6.0E-51                                       | 11526289                 | NT                            | Homo sapiens interleukin 17 receptor (IL17R), mRNA   |
| 814                    | 13983                 | 27047             | 6.22                 | 5.0E-51                                       | AL163203.2               | NT                            | Homo sapiens chromosome 21 segment HS21C003  |
| 828                    | 14004                 | 27061             | 1.71                 | 5.0E-51                                       | 4507500                  | NT                            | Homo sapiens T-cell lymphoma invasion and metastasis 1 (TIAM1) mRNA  |
| 1015                   | 18028                 | 27247             | 2.39                 | 5.0E-51                                       | AL133204.1               | NT                            | Novel human gene mapping to chromosome X   |
| 1638                   | 14780                 | 27875             | 1.14                 | 5.0E-51                                       | 5031980                  | NT                            | Homo sapiens 26S proteasome-associated pad1 homolog (POH1) mRNA  |
| 2658                   | 15781                 | 28894             | 10.36                | 5.0E-51                                       | AJ007558.1               | NT                            | Homo sapiens mRNA for nucleoporin 155  |
| 4055                   | 17211                 | 30221             | 1.31                 | 5.0E-51                                       | M30938.1                 | NT                            | Human Ku (p70/p80) subunit mRNA, complete cds  |
| 4055                   | 17211                 | 30222             | 1.31                 | 5.0E-51                                       | M30938.1                 | NT                            | Human Ku (p70/p80) subunit mRNA, complete cds  |
| 5183                   | 18305                 | 31269             | 1.04                 | 5.0E-51                                       | AB037832.1               | NT                            | Homo sapiens mRNA for KIAA1411 protein, partial cds  |
| 11558                  | 24813                 | 38282             | 3.8                  | 5.0E-51                                       | 5803136                  | NT                            | Homo sapiens RNA binding motif protein 3 (RBM3), mRNA  |
| 137                    | 13363                 | 26387             | 14.26                | 3.0E-51                                       | AI587348.1               | EST_HUMAN                     | tr81c09.x1 NCI CGAP Part1 Homo sapiens cDNA clone IMAGE:2224720 3' similar to gb:M26328  |
| 1203                   | 14365                 | 27425             | 48.14                | 3.0E-51                                       | AI587348.1               | EST_HUMAN                     | KERATIN, TYPE I CYTOSKELETAL 18 (HUMAN);   |
| 1976                   | 15119                 | 28220             | 1.38                 | 3.0E-51                                       | AA211288.1               | EST_HUMAN                     | tr81c09.x1 NCI CGAP Part1 Homo sapiens cDNA clone IMAGE:2224720 3' similar to gb:M26328  |
| 4446                   | 17586                 | 30567             | 1.85                 | 3.0E-51                                       | AL158142.1               | NT                            | KERATIN, TYPE I CYTOSKELETAL 18 (HUMAN);   |
| 7753                   | 20813                 | 34304             | 2.3                  | 3.0E-51                                       | R15914.1                 | EST_HUMAN                     | zq87g01.s1 Stragene hNT neuron (#637233) Homo sapiens cDNA clone IMAGE:649008 3'   |
| 9040                   | 22119                 |                   | 3.85                 | 3.0E-51                                       | M28063.1                 | NT                            | Novel human gene mapping to chromosome 22  |
| 9268                   | 26227                 |                   | 0.61                 | 3.0E-51                                       | AW583777.1               | EST_HUMAN                     | ye47c08.r1 Soares infant brain 1N1B Homo sapiens cDNA clone IMAGE:63233 5' similar to gb:M14123_cde4   |
| 12887                  | 25578                 |                   | 6.56                 | 3.0E-51                                       | AF003528.1               | NT                            | RETROVIRUS-RELATED POLYPROTEIN (HUMAN); contains LTR5 repetitive element;  |
| 377                    | 13585                 | 28619             | 1.88                 | 2.0E-51                                       | 4507798                  | NT                            | Human hnRNP C2 protein mRNA  |
| 706                    | 13689                 | 26921             | 0.89                 | 2.0E-51                                       | BE391063.1               | EST_HUMAN                     | ia04d06.y1 Human Pancreatic Islets Homo sapiens cDNA 5'  |
| 708                    | 13689                 | 26922             | 0.89                 | 2.0E-51                                       | BE391063.1               | EST_HUMAN                     | Homo sapiens X-linked anhidrotic ectodermal dysplasia protein gene (EDA), exon 2 and flanking repeat regions   |
| 1723                   | 14873                 | 27865             | 16.76                | 2.0E-51                                       | AA233352.1               | EST_HUMAN                     | Homo sapiens ubiquitin protein ligase E3A (human papilloma virus E6-associated protein, Angelman syndrome) (UBE3A) mRNA  |
| 3927                   | 16867                 | 29890             | 3.05                 | 2.0E-51                                       | AI482415.1               | EST_HUMAN                     | 601285684F1 NIH_MGC_44 Homo sapiens cDNA clone IMAGE:3607463 5'  |
| 4816                   | 17753                 | 30734             | 1.21                 | 2.0E-51                                       | AW137826.1               | EST_HUMAN                     | 601285684F1 NIH_MGC_44 Homo sapiens cDNA clone IMAGE:3607463 5'  |
| 6326                   | 18439                 | 31408             | 0.66                 | 2.0E-51                                       | AI381520.1               | EST_HUMAN                     | z70c05.J1 Stragene NT2 neuronal precursor 837230 Homo sapiens cDNA clone IMAGE:664880 5' similar to TR:G233226 G233226 RTVL-H PROTEIN, contains LTR7.13 LTR7 repetitive element; |
|                        |                       |                   |                      |   |                          |                               | U1H-B11-adj-4-02-0-UI.s1 NCI CGAP Kid11 Homo sapiens cDNA clone IMAGE:2713732 3'   |
|                        |                       |                   |                      |   |                          |                               | tr76c08.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2062622 3' similar to TR:P63107   |
|                        |                       |                   |                      |   |                          |                               | P63107 PF20.1;   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 6139                   | 19317                 | 32658             | 3.54                 | 2.0E-51                                       | BE782015.1               | EST_HUMAN                     | 601470448F1 NIH_MGC_67 Homo sapiens cDNA clone IMAGE:3873563 5'                                     |
| 7462                   | 20537                 |                   | 0.73                 | 2.0E-51                                       | AF215927.1               | NT                            | Homo sapiens diacylglycerol kinase Iota (DGKI) gene, exon 23  |
| 7615                   | 20685                 | 34161             | 1.29                 | 2.0E-51                                       | 7682349                  | NT                            | Homo sapiens cell recognition molecule Caspr2 (KIAA00688), mRNA                                     |
| 8696                   | 21975                 | 35512             | 1.61                 | 2.0E-51                                       | BE801694.1               | EST_HUMAN                     | 601676787F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3959613 5'                                     |
| 8696                   | 21975                 | 35513             | 1.61                 | 2.0E-51                                       | BE801694.1               | EST_HUMAN                     | 601676787F1 NIH_MGC_21 Homo sapiens cDNA clone IMAGE:3959613 5'                                     |
| 9235                   | 22312                 | 35854             | 1.03                 | 2.0E-51                                       | 11037064                 | NT                            | Homo sapiens disrupted in schizophrenia 1 (DISC1), mRNA   |
| 9712                   | 22777                 | 36347             | 1.76                 | 2.0E-51                                       | AB17078.1                | EST_HUMAN                     | ts74407.x1 NCI_CGAP_GC8 Homo sapiens cDNA clone IMAGE:2236980 3' similar to SW:TRKC_HUMAN           |
| 9803                   | 22843                 | 36420             | 4.86                 | 2.0E-51                                       | BE165680.1               | EST_HUMAN                     | Q16288 NT-3 GROWTH FACTOR RECEPTOR PRECURSOR ;  |
| 9818                   | 22858                 | 36438             | 0.69                 | 2.0E-51                                       | AB007928.1               | NT                            | MF3-HT0487-150200-113-901 HT0487 Homo sapiens cDNA  |
| 10648                  | 23682                 | 37293             | 1.58                 | 2.0E-51                                       | AV682474.1               | EST_HUMAN                     | Homo sapiens mRNA for KIAA0457 protein, partial cds   |
| 10690                  | 23723                 | 37328             | 1.07                 | 2.0E-51                                       | AA378559.1               | EST_HUMAN                     | AV682474 GKB Homo sapiens cDNA clone GKBAGF05 5'  |
| 11610                  | 18762                 | 31789             | 5.82                 | 2.0E-51                                       | A1732851.1               | EST_HUMAN                     | EST91288 Synovial sarcoma Homo sapiens cDNA 5' end  |
| 11610                  | 18762                 | 31789             | 5.82                 | 2.0E-51                                       | A1732851.1               | EST_HUMAN                     | 083409.x5 NCI_CGAP_Kd5 Homo sapiens cDNA clone IMAGE:1325608 3' similar to SW:NME1_MOUSE            |
| 11610                  | 18762                 | 31789             | 5.82                 | 2.0E-51                                       | A1732851.1               | EST_HUMAN                     | P35436 GLUTAMATE [NMDA] RECEPTOR SUBUNIT EPSILON 1 PRECURSOR ;                                      |
| 11610                  | 18762                 | 31789             | 5.82                 | 2.0E-51                                       | A1732851.1               | EST_HUMAN                     | 083409.x6 NCI_CGAP_Kd5 Homo sapiens cDNA clone IMAGE:1325608 3' similar to SW:NME1_MOUSE            |
| 11610                  | 18762                 | 31789             | 5.82                 | 2.0E-51                                       | A1732851.1               | EST_HUMAN                     | P35436 GLUTAMATE [NMDA] RECEPTOR SUBUNIT EPSILON 1 PRECURSOR ;                                      |
| 11610                  | 18762                 | 31789             | 5.82                 | 2.0E-51                                       | A1732851.1               | EST_HUMAN                     | Homo sapiens myeloid/lymphoid or mixed-lineage leukemia (t(11q23;q24) (MLL T4), mRNA                |
| 12680                  | 25571                 | 31882             | 1.62                 | 2.0E-51                                       | 11419159                 | NT                            | Homo sapiens eukaryotic translation initiation factor 4A, isoform 1 (EIF4A1) mRNA                   |
| 117                    | 13348                 | 26375             | 10.94                | 1.0E-51                                       | 4503528                  | NT                            | AV742248 CB Homo sapiens cDNA clone CBFBG12 5'  |
| 1523                   | 14676                 |                   | 37.16                | 1.0E-51                                       | AV742248.1               | EST_HUMAN                     | Homo sapiens serine palmitoyl transferase, subunit II gene, complete cds; and unknown genes         |
| 4918                   | 18048                 | 31036             | 0.82                 | 1.0E-51                                       | AF111168.2               | NT                            | b12058 Testis 1 Homo sapiens cDNA clone b12058  |
| 5505                   | 18704                 | 31720             | 3.7                  | 1.0E-51                                       | T18882.1                 | EST_HUMAN                     | ts39g02.x1 Soares_NIHMFU_S1 Homo sapiens cDNA clone IMAGE:2089108 3'                                |
| 7827                   | 20882                 | 34384             | 1.03                 | 1.0E-51                                       | A1572532.1               | EST_HUMAN                     | 768602.x1 NCI_CGAP_Ov18 Homo sapiens cDNA clone IMAGE:3644081 3' similar to TR:P87892 P87892        |
| 8037                   | 21169                 | 34884             | 0.51                 | 1.0E-51                                       | BF434359.1               | EST_HUMAN                     | PROTEASE ;  |
| 12076                  | 26232                 |                   | 1.97                 | 1.0E-51                                       | AV760590.1               | EST_HUMAN                     | AV760590 MDS Homo sapiens cDNA clone MDSB802 5'   |
| 12610                  | 25409                 |                   | 9.43                 | 9.0E-52                                       | AA777621.1               | EST_HUMAN                     | 285607.s1 Soares_fetal_liver_spleen_1NF.LS_S1 Homo sapiens cDNA clone IMAGE:448500 3' similar to    |
| 156                    | 13381                 | 28412             | 11.42                | 8.0E-52                                       | AA720574.1               | EST_HUMAN                     | contains THR13 THR repetitive element ;   |
| 1526                   | 14679                 | 27760             | 2.39                 | 8.0E-52                                       | XB4900.1                 | NT                            | nm21g02.x1 NCI_CGAP_GC80 Homo sapiens cDNA clone IMAGE:1241138 3' similar to contains THR13         |
|                        |                       |                   |                      |   |                          |                               | THR repetitive element ;  |
|                        |                       |                   |                      |   |                          |                               | H.sapiens mRNA for laminin-5, alpha3b chain   |
| 1686                   | 14838                 | 27822             | 2.85                 | 8.0E-52                                       | 11968028                 | NT                            | Homo sapiens hypothetical protein FLJ13556 similar to N-myc downstream regulated 3 (FLJ13556), mRNA |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 1688                   | 14838                 | 27923             | 2.85                 | 8.0E-52                                       | 11988028                 | NT                            | Homo sapiens hypothetical protein FLJ13556 similar to N-myc downstream regulated 3 (FLJ13556), mRNA  |
| 4101                   | 14838                 | 27922             | 6.75                 | 8.0E-52                                       | 11988028                 | NT                            | Homo sapiens hypothetical protein FLJ13556 similar to N-myc downstream regulated 3 (FLJ13556), mRNA  |
| 4101                   | 14838                 | 27923             | 6.75                 | 8.0E-52                                       | 11988028                 | NT                            | Homo sapiens hypothetical protein FLJ13556 similar to N-myc downstream regulated 3 (FLJ13556), mRNA  |
| 7688                   | 20751                 | 34232             | 0.76                 | 8.0E-52                                       | 11416585                 | NT                            | Homo sapiens transforming growth factor, beta-induced, 68kD (TGFB1), mRNA  |
| 7688                   | 20751                 | 34233             | 0.76                 | 8.0E-52                                       | 11416585                 | NT                            | Homo sapiens transforming growth factor, beta-induced, 68kD (TGFB1), mRNA  |
| 9215                   | 22283                 | 35838             | 1.86                 | 7.0E-52                                       | W96471.1                 | EST_HUMAN                     | zc59a08.1 Scores_peradhyroid_tumor_NbHFA Homo sapiens cDNA clone IMAGE:326578 5' similar to contains Alu repetitive element  |
| 1214                   | 14375                 |                   | 0.63                 | 6.0E-52                                       | BE072409.1               | EST_HUMAN                     | QV3-BT0537-271209-049-d07 BT0537 Homo sapiens cDNA   |
| 1729                   | 14878                 | 27870             | 7.1                  | 6.0E-52                                       | AF106907.1               | NT                            | Homo sapiens S184 gene, partial cds; PS1 and hypothetical protein genes, complete cds; and S171 gene, partial cds  |
| 5845                   | 18035                 | 32341             | 1.05                 | 6.0E-52                                       | AI208784.1               | EST_HUMAN                     | g844f04.x1 Scores_testis_NFT Homo sapiens cDNA clone IMAGE:1838047 3'  |
| 11484                  | 24543                 | 38214             | 2.36                 | 6.0E-52                                       | BE048172.1               | EST_HUMAN                     | tz48h04.y1 NCI CGAP_Bim52 Homo sapiens cDNA clone IMAGE:2291671 5' similar to SW-PCGM_MOUSE Q05793 BASEMENT MEMBRANE-SPECIFIC HEPARAN SULFATE PROTEOGLYCAN CORE PROTEIN PRECURSOR; |
| 4562                   | 17700                 | 30682             | 2.27                 | 6.0E-52                                       | Z78888.1                 | NT                            | H. sapiens flow-sorted chromosome 6 HindIII fragment, SC9pa18H7  |
| 9592                   | 22847                 | 39218             | 0.48                 | 6.0E-52                                       | 11437365                 | NT                            | Homo sapiens FSHD region gene 1 (FRG1), mRNA   |
| 1885                   | 14847                 | 27931             | 1.66                 | 4.0E-52                                       | AF257318.1               | NT                            | Homo sapiens SH3-containing protein SH3GLB1 mRNA, complete cds   |
| 1829                   | 14877                 | 28072             | 1.63                 | 4.0E-52                                       | 4758843                  | NT                            | Homo sapiens nucleoporin 158kD (NUP155) mRNA   |
| 4037                   | 17193                 | 30203             | 0.77                 | 4.0E-52                                       | 4507500                  | NT                            | Homo sapiens T-cell lymphoma invasion and metastasis 1 (TIAM1) mRNA  |
| 4882                   | 17995                 | 30980             | 0.81                 | 4.0E-52                                       | AI768814.1               | EST_HUMAN                     | w88b02.x1 NCI CGAP_JGd12 Homo sapiens cDNA clone IMAGE:2400459 3'  |
| 5401                   | 18503                 | 31574             | 1.3                  | 4.0E-52                                       | 4508132                  | NT                            | Homo sapiens phosphatidyl pyrophosphate synthetase-associated protein 2 (PRP-SAP2) mRNA  |
| 5401                   | 18503                 | 31575             | 1.3                  | 4.0E-52                                       | 4508132                  | NT                            | Homo sapiens phosphatidyl pyrophosphate synthetase-associated protein 2 (PRP-SAP2) mRNA  |
| 8228                   | 21310                 | 34830             | 1.18                 | 4.0E-52                                       | BE622032.1               | EST_HUMAN                     | 601440687F1 NIH_MGC_72 Homo sapiens cDNA clone IMAGE:3915836 5'  |
| 8731                   | 21811                 | 35347             | 5.5                  | 4.0E-52                                       | 11417035                 | NT                            | Homo sapiens hydrocortisol (17-beta) dehydrogenase 4 (HSD17B4), mRNA   |
| 12429                  | 25304                 |                   | 3.44                 | 4.0E-52                                       | 11418177                 | NT                            | Homo sapiens Ran GTPase activating protein 1 (RANGAP1), mRNA   |
| 12867                  | 25842                 |                   | 12.78                | 4.0E-52                                       | AB002059.1               | NT                            | Homo sapiens DNA for Human P2XM, complete cds  |
| 13141                  | 25741                 |                   | 1.3                  | 4.0E-52                                       | AB011399.1               | NT                            | Homo sapiens gene for AF-6, complete cds   |
| 4204                   | 17353                 |                   | 11.41                | 3.0E-52                                       | 11437042                 | NT                            | Homo sapiens hypothetical protein FLJ10675 (FLJ10675), mRNA  |
| 576                    | 13768                 | 26780             | 1.82                 | 2.0E-52                                       | M10976.1                 | NT                            | Human endogenous retroviral DNA (4-1), complete retroviral segment   |
| 576                    | 13768                 | 26781             | 1.82                 | 2.0E-52                                       | M10976.1                 | NT                            | Human endogenous retroviral DNA (4-1), complete retroviral segment   |
| 2071                   | 15211                 | 28328             | 1.18                 | 2.0E-52                                       | AB033075.1               | NT                            | Homo sapiens mRNA for KIAA1249 protein, partial cds  |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 2568                   | 15693                 | 28818             | 1.5                  | 2.0E-52                                       | BE207575.1               | EST_HUMAN                     | b68607.y1 NIH_MGC_9 Homo sapiens cDNA clone IMAGE:3030421 5' similar to gb:X16493 M.musculus<br>mRNA for Zfp-1 zinc finger protein (MOUSE);                |
| 2768                   | 15011                 |                   | 11.46                | 2.0E-52                                       | BF677892.1               | EST_HUMAN                     | 602084710F1 NIH_MGC_83 Homo sapiens cDNA clone IMAGE:4248891 5'  |
| 5092                   | 18220                 | 31190             | 3.41                 | 2.0E-52                                       | AL137188.3               | NT                            | Novel human gene mapping to chromosome 20, similar to membrane transporters  |
| 5126                   | 18251                 | 31216             | 1.4                  | 2.0E-52                                       | AI141802.1               | EST_HUMAN                     | qa56e05.s1 Soares_NHrMPu_S1 Homo sapiens cDNA clone IMAGE:1690784 3'   |
| 5128                   | 18251                 | 31217             | 1.4                  | 2.0E-52                                       | AI141802.1               | EST_HUMAN                     | qa56e05.s1 Soares_NHrMPu_S1 Homo sapiens cDNA clone IMAGE:1690784 3'   |
| 6821                   | 19011                 | 32317             | 3.24                 | 2.0E-52                                       | AW848041.1               | EST_HUMAN                     | IL3-CT0214-231289-063-E12 CT0214 Homo sapiens cDNA   |
| 6497                   | 19863                 | 33026             | 1.98                 | 2.0E-52                                       | 11141868                 | NT                            | Homo sapiens Interleukin 21 receptor (IL21R), mRNA   |
| 8853                   | 20006                 | 33415             | 0.86                 | 2.0E-52                                       | AB029004.1               | NT                            | Homo sapiens mRNA for KIAA1081 protein, partial cds  |
| 7081                   | 20175                 | 33597             | 0.76                 | 2.0E-52                                       | AI782146.1               | EST_HUMAN                     | oa45d12.y5 NCI_CGAP_Br2 Homo sapiens cDNA clone IMAGE:1608311 5'   |
| 7996                   | 21046                 | 34558             | 0.89                 | 2.0E-52                                       | 6032158                  | NT                            | Homo sapiens transducin (beta)-like 1 (TBL1) mRNA  |
| 7996                   | 21046                 | 34559             | 0.69                 | 2.0E-52                                       | 5032158                  | NT                            | Homo sapiens transducin (beta)-like 1 (TBL1) mRNA  |
| 8854                   | 21933                 |                   | 8.71                 | 2.0E-52                                       | AF147880.1               | NT                            | Macaca mulatta beta-tubulin mRNA, complete cds   |
| 9196                   | 22215                 | 35759             | 0.96                 | 2.0E-52                                       | AA778795.1               | EST_HUMAN                     | z445g05.s1 Soares_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:453272 3'  |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens NADH dehydrogenase (ubiquinone) Fe-S protein 5 (15KD) (NADH-coenzyme Q reductase)<br>(NDUFS5) mRNA  |
| 9690                   | 22842                 |                   | 1                    | 2.0E-52                                       | 4758789                  | NT                            | Homo sapiens SET domain and mariner transposase fusion gene (SETMAR) mRNA  |
| 10321                  | 23356                 | 36965             | 4.6                  | 2.0E-52                                       | 5730038                  | NT                            | Homo sapiens SET domain and mariner transposase fusion gene (SETMAR) mRNA  |
| 10321                  | 23356                 | 36968             | 4.8                  | 2.0E-52                                       | 5730038                  | NT                            | wf49c04.x1 NCI_CGAP_Lu19 Homo sapiens cDNA clone IMAGE:2406160 3' similar to contains THR.b2<br>THR repetitive element                                     |
| 11481                  | 24540                 | 38209             | 3.14                 | 2.0E-52                                       | A1931482.1               | EST_HUMAN                     | wf49c04.x1 NCI_CGAP_Lu19 Homo sapiens cDNA clone IMAGE:2406160 3' similar to contains THR.b2<br>THR repetitive element                                     |
| 11481                  | 24540                 | 38210             | 3.14                 | 2.0E-52                                       | A1931482.1               | EST_HUMAN                     | AV715377 DCB Homo sapiens cDNA clone DCB.AE03 5'   |
| 11491                  | 24550                 | 38225             | 2.52                 | 2.0E-52                                       | AV715377.1               | EST_HUMAN                     | z149g12.f1 Soares_fetal_heart_NhrH10W Homo sapiens cDNA clone IMAGE:344038 5'  |
| 11634                  | 24714                 |                   | 1.46                 | 2.0E-52                                       | W70260.1                 | EST_HUMAN                     | Homo sapiens LIM domain kinase 2 (LIMK2), mRNA   |
| 11918                  | 24804                 |                   | 3.25                 | 2.0E-52                                       | 11417990                 | NT                            | xn72e07.x1 NCI_CGAP_GML1 Homo sapiens cDNA clone IMAGE:2700036 3' similar to contains Alu<br>repetitive element; contains element L1TR2 repetitive element |
| 12234                  | 26194                 | 31541             | 5.9                  | 2.0E-52                                       | AW236297.1               | EST_HUMAN                     | wf67d05.x1 Soares_NFL_T_C9C_S1 Homo sapiens cDNA clone IMAGE:2360849 3' similar to TR-Q16859<br>Q16859 CARBOXYLESTERASE;                                   |
| 12658                  | 26437                 |                   | 5.72                 | 2.0E-52                                       | A1806985.1               | EST_HUMAN                     | z175h12.s1 Soares_testis_NhrT Homo sapiens cDNA clone IMAGE:743878 3'  |
| 548                    | 13739                 | 26764             | 1.89                 | 1.0E-52                                       | AA634445.1               | EST_HUMAN                     | Homo sapiens glutamate-aminonitrile lyase (glutamine synthase) (GLUL) mRNA   |
| 1402                   | 14856                 | 27630             | 18.76                | 1.0E-52                                       | 4504026                  | NT                            | Homo sapiens arylsulfatase D (ARSD), transcript variant 1, mRNA  |
| 2600                   | 15724                 |                   | 1.88                 | 1.0E-52                                       | 4502238                  | NT                            | pol=reverse transcriptase homolog (retroviral element) [human, endogenous retroviral element RTVL-Hp1,<br>Genomic, 660 nt]                                 |
| 3126                   | 16302                 | 29315             | 2.6                  | 1.0E-52                                       | S61070.1                 | NT                            |  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 5448                   | 18048                 | 31626             | 4.43                 | 1.0E-52                                       | M29428.1                 | NT                            | Human P-glycoprotein (MDR1) gene, exon 4   |
| 6523                   | 18888                 | 33082             | 2.33                 | 1.0E-52                                       | U38964.1                 | NT                            | Human PMS2 related (PMSR2) gene, complete cds  |
| 7388                   | 20659                 | 34135             | 2.07                 | 1.0E-52                                       | X07282.1                 | NT                            | Human aldolase C gene for fructose-1,6-bisphosphate aldolase   |
| 8014                   | 21064                 | 34576             | 0.59                 | 1.0E-52                                       | U80017.1                 | NT                            | Homo sapiens basic transcription factor 2 p44 (btf2p44) gene, partial cds, neuronal apoptosis inhibitory protein (hnp) and survival motor neuron protein (smn) genes, complete cds |
| 8660                   | 21740                 |                   | 1.18                 | 1.0E-52                                       | AL163227.2               | NT                            | Homo sapiens chromosome 21 segment HS21C027  |
| 9390                   | 22465                 | 36029             | 0.77                 | 1.0E-52                                       | AF078779.1               | NT                            | Rattus norvegicus putative four repeat ion channel mRNA, complete cds  |
| 10804                  | 23837                 |                   | 0.68                 | 1.0E-52                                       | AW020370.1               | EST_HUMAN                     | af0805.y1 Morton Fetal Cochlea Homo sapiens cDNA clone IMAGE:2483146 5'  |
| 10914                  | 23947                 |                   | 1.08                 | 1.0E-52                                       | AL163202.2               | NT                            | Homo sapiens chromosome 21 segment HS21C002  |
| 11004                  | 24083                 | 37720             | 2.12                 | 1.0E-52                                       | U48296.1                 | NT                            | Homo sapiens protein tyrosine phosphatase PTPCAAX1 (PTPCAAX1) mRNA, complete cds   |
| 11075                  | 24150                 |                   | 1.72                 | 1.0E-52                                       | 11428321                 | NT                            | Homo sapiens proteasome (prosome, macropain) subunit, beta type, 2 (PSMB2), mRNA   |
| 12135                  | 25116                 | 38819             | 1.31                 | 1.0E-52                                       | 11421401                 | NT                            | Homo sapiens 5'-3' exoribonuclease 2 (XRN2), mRNA  |
| 12135                  | 25115                 | 38820             | 1.31                 | 1.0E-52                                       | 11421401                 | NT                            | Homo sapiens 5'-3' exoribonuclease 2 (XRN2), mRNA  |
| 3891                   | 17050                 | 30049             | 0.69                 | 9.0E-53                                       | 4508084                  | NT                            | Homo sapiens protein kinase, cAMP-dependent, regulatory, type II, beta (PRKAR2B) mRNA  |
| 4611                   | 17660                 | 30638             | 3.3                  | 9.0E-53                                       | AF001446.1               | NT                            | Homo sapiens core binding factor alpha1 subunit (CBFA1) gene, exon 3   |
| 12480                  | 25532                 |                   | 6.65                 | 7.0E-53                                       | BF238465.1               | EST_HUMAN                     | 601804771F1 NIH_MGC_64 Homo sapiens cDNA clone IMAGE:4192768 5'  |
| 12958                  | 26048                 |                   | 7.06                 | 7.0E-53                                       | AA421782.1               | EST_HUMAN                     | 644807.x1 NCI_CGAP_Bm23 Homo sapiens cDNA clone IMAGE:2069077 3' similar to contains THR.11 THR repetitive element:  |
| 4214                   | 17363                 | 30351             | 4.46                 | 5.0E-53                                       | 4768543                  | NT                            | Homo sapiens heterogeneous nuclear ribonucleoprotein C (C1/C2) (HNRPC) mRNA  |
| 5283                   | 18411                 | 31377             | 0.92                 | 5.0E-53                                       | AL163282.2               | NT                            | Homo sapiens chromosome 21 segment HS21C082  |
| 12528                  | 25360                 |                   | 1.93                 | 5.0E-53                                       | AW813563.1               | EST_HUMAN                     | RC3-ST0197-16T098-011-g 10 ST0197 Homo sapiens cDNA  |
| 50                     | 13289                 | 26301             | 2.07                 | 4.0E-53                                       | AL163285.2               | NT                            | Homo sapiens chromosome 21 segment HS21C085  |
| 50                     | 13289                 | 26302             | 2.07                 | 4.0E-53                                       | AL163285.2               | NT                            | Homo sapiens chromosome 21 segment HS21C085  |
| 9816                   | 22671                 |                   | 0.87                 | 4.0E-53                                       | A1613037.1               | EST_HUMAN                     | 6y06t04.x1 NCI_CGAP_UJ3 Homo sapiens cDNA clone IMAGE:2278327 3'   |
| 9958                   | 22987                 |                   | 0.94                 | 4.0E-53                                       | F13080.1                 | EST_HUMAN                     | HSC3ID041 normalized infant brain cDNA Homo sapiens cDNA clone c-3id04   |
| 11489                  | 24548                 | 38221             | 2.99                 | 4.0E-53                                       | BF128701.1               | EST_HUMAN                     | 601810698F1 NIH_MGC_48 Homo sapiens cDNA clone IMAGE:4063977 5'  |
| 11489                  | 24548                 | 38222             | 2.99                 | 4.0E-53                                       | BF128701.1               | EST_HUMAN                     | 601810698F1 NIH_MGC_48 Homo sapiens cDNA clone IMAGE:4063977 5'  |
| 2726                   | 15944                 | 28955             | 2.94                 | 3.0E-53                                       | AB028898.1               | NT                            | Homo sapiens DNA, DLEC1 to ORCTL4 gene region, section 1/2 (DLEC1, ORCTL4 genes, complete cds)   |
| 3825                   | 16985                 | 29888             | 1.18                 | 3.0E-53                                       | AW060836.1               | EST_HUMAN                     | wr22x207.x1 Soares_Dieckgraefe_colon_NHCD Homo sapiens cDNA clone IMAGE:2568798 3'   |
| 4713                   | 17848                 | 30831             | 0.75                 | 3.0E-53                                       | AW803563.1               | EST_HUMAN                     | IL2-UM0081-240300-056-D03 UM0081 Homo sapiens cDNA   |
| 5541                   | 18738                 | 31755             | 0.97                 | 3.0E-53                                       | AF001212.1               | NT                            | Homo sapiens 26S proteasome subunit 8 mRNA, complete cds   |
| 5743                   | 18938                 | 32238             | 1.01                 | 3.0E-53                                       | 11528297                 | NT                            | Homo sapiens MIL1 protein (MIL1), mRNA   |
| 6323                   | 19495                 | 32851             | 1.46                 | 3.0E-53                                       | BE180025.1               | EST_HUMAN                     | QV1-HT0412-280300-123-c04 HT0412 Homo sapiens cDNA   |

Table 4  
Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 7247                   | 20330                 | 33776             | 0.76                 | 3.0E-53                                       | Y10388.3                 | NT                            | H.septens gra1 gene   |
| 7247                   | 20330                 | 33777             | 0.76                 | 3.0E-53                                       | Y10388.3                 | NT                            | H.septens gra1 gene   |
| 8469                   | 21580                 | 35116             | 10.97                | 3.0E-53                                       | S72043.1                 | NT                            | GIF-growth inhibitory factor [human, brain, Genomic, 2015 nt]   |
| 9060                   | 22139                 | 35683             | 0.85                 | 3.0E-53                                       | 10835090                 | NT                            | Homo sapiens bone morphogenetic protein 5 (BMP5), mRNA  |
| 9257                   | 22334                 |                   | 9.77                 | 3.0E-53                                       | 5901853                  | NT                            | Homo sapiens FGFR1 oncogene partner (FOP), mRNA   |
| 12361                  | 25259                 |                   | 1.18                 | 3.0E-53                                       | 11426423                 | NT                            | Homo sapiens acetyl-Coenzyme A carboxylase alpha (ACACA), mRNA  |
| 470                    | 19665                 |                   | 11.25                | 2.0E-53                                       | AA366556.1               | EST_HUMAN                     | EST177525 Pancreas tumor III Homo sapiens cDNA 5' end   |
| 2068                   | 16209                 | 28325             | 3.29                 | 2.0E-53                                       | 7705394                  | NT                            | Homo sapiens hyaluronic acid receptor (HAR), mRNA   |
| 2404                   | 16535                 | 28682             | 0.28                 | 2.0E-53                                       | U78027.1                 | NT                            | Homo sapiens Bruton's tyrosine kinase (BTK), alpha-D-galactosidase A (GLA), L44-like ribosomal protein (L44L) and FIP3 (FIP3) genes, complete cds |
| 2801                   | 15725                 |                   | 12.68                | 2.0E-53                                       | 4502310                  | NT                            | Homo sapiens ATPase, H+ transporting, lysosomal (vacuolar proton pump) 31kD; Vacuolar proton-ATPase, subunit E; V-ATPase, subunit E (ATP6E), mRNA |
| 3290                   | 18484                 | 29483             | 0.79                 | 2.0E-53                                       | 7705887                  | NT                            | Homo sapiens leucine aminopeptidase (LOC51058), mRNA  |
| 3317                   | 18490                 | 29508             | 1.28                 | 2.0E-53                                       | AF093822.1               | NT                            | Homo sapiens dihydropyridine receptor alpha 2 subunit (CACNA2D1) gene, exon 8   |
| 4170                   | 17320                 | 30313             | 2.99                 | 2.0E-53                                       | M61873.1                 | NT                            | Human Kruppel-related DNA-binding protein (TF34) gene, partial cds  |
| 5542                   | 18739                 | 31756             | 2.46                 | 2.0E-53                                       | BF334740.1               | EST_HUMAN                     | PM1-CT0398-170800-001-g03 CT0398 Homo sapiens cDNA  |
| 5542                   | 18739                 | 31757             | 2.46                 | 2.0E-53                                       | BF334740.1               | EST_HUMAN                     | PM1-CT0398-170800-001-g03 CT0398 Homo sapiens cDNA  |
| 8055                   | 21138                 | 34658             | 1.01                 | 2.0E-53                                       | AW975598.1               | EST_HUMAN                     | EST387707 MAGE resequences, MAGN Homo sapiens cDNA  |
| 8196                   | 21278                 |                   | 0.48                 | 2.0E-53                                       | AA095652.1               | EST_HUMAN                     | I5428 seq.F Human fetal heart, Lambda ZAP Express Homo sapiens cDNA 5'  |
| 9608                   | 22663                 |                   | 3.47                 | 2.0E-53                                       | AW245676.1               | EST_HUMAN                     | 2822665.5prime NIH_MGC.7 Homo sapiens cDNA clone IMAGE:2822665 5'   |
| 10882                  | 23895                 | 37517             | 0.69                 | 2.0E-53                                       | BE550195.1               | EST_HUMAN                     | 765002.1 NC1 CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3231627 3' similar to TR:Q04008 Q04009   |
| 1477                   | 14630                 | 27715             | 2.2                  | 1.0E-53                                       | AJ271736.1               | NT                            | MYOSIN HEAVY CHAIN.1  |
| 3496                   | 16863                 | 28675             | 2.99                 | 1.0E-53                                       | AB028898.1               | NT                            | Homo sapiens Xq pseudautosomal region; segment 2/2  |
| 5078                   | 18206                 | 31178             | 1.06                 | 1.0E-53                                       | BE266386.1               | EST_HUMAN                     | Homo sapiens DNA, DLEC1 to ORCTL4 gene region, section 1/2 (DLEC1, ORCTL3, ORCTL4 genes, complete cds)  |
| 6831                   | 19984                 | 33392             | 1.5                  | 1.0E-53                                       | BF368420.1               | EST_HUMAN                     | 601176725F1 NIH_MGC.17 Homo sapiens cDNA clone IMAGE:3531919 5'   |
| 7397                   | 20475                 | 33942             | 0.87                 | 1.0E-53                                       | BE12071.1                | EST_HUMAN                     | GM4-NIN1029-150800-543-e02 NN1028 Homo sapiens cDNA   |
| 8120                   | 21202                 | 34723             | 0.6                  | 1.0E-53                                       | AA249072.1               | EST_HUMAN                     | RC6-BN1058-270400-031-D01 BN1058 Homo sapiens cDNA  |
| 9260                   | 22368                 | 35915             | 4.73                 | 1.0E-53                                       | X79536.1                 | NT                            | I9571 seq.F Human fetal heart, Lambda ZAP Express Homo sapiens cDNA 5'  |
| 12228                  | 25176                 | 38345             | 1.47                 | 1.0E-53                                       | AW245422.1               | EST_HUMAN                     | H.septens mRNA for hnRNPcore protein A1   |
| 3324                   | 16497                 | 29515             | 0.61                 | 9.0E-54                                       | 4504116                  | NT                            | 2822943.3prime NIH_MGC.7 Homo sapiens cDNA clone IMAGE:2822943 5'   |
| 5417                   | 25803                 | 31593             | 5.86                 | 9.0E-54                                       | 4506786                  | NT                            | Homo sapiens glutamate receptor, ionotropic, kainate 1 (GRIK1) mRNA   |
| 212                    | 13435                 | 26465             | 1.29                 | 8.0E-54                                       | BE386785.1               | EST_HUMAN                     | Homo sapiens IQ motif containing GTPase activating protein 1 (IQGAP1) mRNA  |

Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 1882                   | 15028                 | 28133             | 2.08                 | 8.0E-54                                       | 4504610                  | NT                            | Homo sapiens insulin-like growth factor 2 receptor (IGF2R) mRNA   |
| 6057                   | 19239                 | 32564             | 23.39                | 8.0E-54                                       | 6005700                  | NT                            | Homo sapiens ATP-binding cassette, sub-family A (ABC1), member 8 (ABCA8), mRNA  |
| 395                    | 19632                 | 26669             | 1.35                 | 7.0E-54                                       | AA812537.1               | EST_HUMAN                     | at79c12.s1 Soares_bstis_NHT Homo sapiens cDNA clone 1377046 3' similar to cortalsin MER30.13 MER30  |
| 1877                   | 15021                 | 28128             | 2.23                 | 7.0E-54                                       | Y16645.1                 | NT                            | repetitive element ;  |
| 2278                   | 15410                 | 28541             | 7.63                 | 7.0E-54                                       | N27177.1                 | EST_HUMAN                     | Homo sapiens mRNA for monocyte chemotactic protein-2  |
| 10333                  | 23368                 | 36978             | 2.1                  | 7.0E-54                                       | 11417222                 | NT                            | yw68d12.s1 Soares_placenta_8to9weeks_2NtHP8to9W Homo sapiens cDNA clone IMAGE:257389 3' similar to contains LTR7.b3 LTR7 repetitive element ; |
| 11365                  | 24426                 | 38081             | 1.4                  | 7.0E-54                                       | 8923698                  | NT                            | Homo sapiens similar to nuclear factor related to kappa B binding protein (H. sapiens) (LOC83182), mRNA                                       |
| 11365                  | 24426                 | 38082             | 1.4                  | 7.0E-54                                       | 8923698                  | NT                            | Homo sapiens golgin-like protein (GLP), mRNA  |
| 11570                  | 24825                 |                   | 3.42                 | 7.0E-54                                       | AI160189.1               | EST_HUMAN                     | Homo sapiens golgin-like protein (GLP), mRNA  |
| 25                     | 13263                 | 26266             | 0.84                 | 6.0E-54                                       | AB003618.1               | NT                            | qb87g08.x1 Soares_fetal_heart_Nbt-H19W Homo sapiens cDNA clone IMAGE:1705204 3' similar to contains ORF.t1 ORF repetitive element ;           |
| 396                    | 13633                 | 28670             | 0.77                 | 6.0E-54                                       | 8922148                  | NT                            | Homo sapiens DNA for MICB, exon 4, 5 and partial cds  |
| 396                    | 13633                 | 28671             | 0.77                 | 6.0E-54                                       | 8922148                  | NT                            | Homo sapiens hypothetical protein DKFZp434M035 (DKFZp434M035), mRNA   |
| 3365                   | 16527                 | 28542             | 0.72                 | 6.0E-54                                       | 8922148                  | NT                            | Homo sapiens hypothetical protein DKFZp434M035 (DKFZp434M035), mRNA   |
| 4111                   | 17265                 | 30265             | 22.75                | 6.0E-54                                       | 4502872                  | NT                            | Homo sapiens hypothetical protein DKFZp434M035 (DKFZp434M035), mRNA   |
| 4584                   | 17721                 | 30704             | 1.09                 | 6.0E-54                                       | AV754746.1               | EST_HUMAN                     | Homo sapiens chloride channel 6 (CLCN6) mRNA  |
| 4968                   | 18097                 | 31079             | 2.15                 | 6.0E-54                                       | 4505806                  | NT                            | AV754746 TP Homo sapiens cDNA clone TPGAAC10 5'   |
| 4998                   | 18125                 |                   | 2.04                 | 6.0E-54                                       | Y09846.1                 | NT                            | Homo sapiens phosphatidylinositol 4-kinase, catalytic, alpha polypeptide (PIK4CA) mRNA  |
| 6115                   | 18125                 |                   | 3.31                 | 6.0E-54                                       | Y09846.1                 | NT                            | H. sapiens shc pseudogene, p66 isoform  |
| 11741                  | 23927                 | 37652             | 1.52                 | 6.0E-54                                       | AW813567.1               | EST_HUMAN                     | H. sapiens shc pseudogene, p66 isoform  |
| 2218                   | 15352                 | 28463             | 1.94                 | 6.0E-54                                       | P51523                   | SWISSPROT                     | RC3-ST0197-151099-011-f08 ST0197 Homo sapiens cDNA  |
| 187                    | 13409                 |                   | 56.19                | 4.0E-54                                       | AF110103.1               | NT                            | ZINC FINGER PROTEIN 84 (ZINC FINGER PROTEIN HPF2)   |
| 978                    | 14151                 | 27211             | 14.58                | 4.0E-54                                       | AA306784.1               | EST_HUMAN                     | Tupala belangeri beta-actin mRNA, partial cds   |
| 1848                   | 14994                 | 28096             | 3.26                 | 4.0E-54                                       | D38521.1                 | NT                            | EST1177698 Jurkat T-cells VI Homo sapiens cDNA 5' end similar to glyceraldehyde-3-phosphate dehydrogenase                                     |
| 1848                   | 14994                 | 28097             | 3.26                 | 4.0E-54                                       | D38521.1                 | NT                            | Human mRNA for KIAA0077 gene, partial cds   |
| 3274                   | 16448                 |                   | 1.85                 | 4.0E-54                                       | AI95098.1                | EST_HUMAN                     | Human mRNA for KIAA0077 gene, partial cds   |
| 96                     | 13331                 | 28358             | 8.12                 | 3.0E-54                                       | AA313487.1               | EST_HUMAN                     | wc26d11.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2328268 3' similar to TR:O02711  |
| 1604                   | 14757                 |                   | 0.96                 | 3.0E-54                                       | AW15742.1                | EST_HUMAN                     | O02711 PRO-POL-DUTPASE POLYPROTEIN ;  |
| 2635                   | 15758                 | 28872             | 1.19                 | 3.0E-54                                       | AL110383.1               | EST_HUMAN                     | EST185371 Colon carcinoma (HCC) cell line Homo sapiens cDNA 5' end  |
|                        |                       |                   |                      |   |                          |                               | td87g08.x1 NCI_OGAP_GC8 Homo sapiens cDNA clone IMAGE:2816542 3'  |
|                        |                       |                   |                      |   |                          |                               | DKFZp434E0731_1 434 (synonym: hscd) Homo sapiens cDNA clone DKFZp434E0731 5'  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 6024                   | 19207                 | 32527             | 1.36                 | 3.0E-54                                       | 4502434                  | NT                            | Homo sapiens BDNF non-receptor tyrosine kinase (BDNF) mRNA   |
| 7548                   | 20620                 | 34098             | 1.34                 | 3.0E-54                                       | AA844081.1               | EST_HUMAN                     | af220208.s1 Soares parathyroid tumor_NbHPA Homo sapiens cDNA clone IMAGE:1388270 3'  |
| 7548                   | 20620                 | 34097             | 1.34                 | 3.0E-54                                       | AA844081.1               | EST_HUMAN                     | af220208.s1 Soares parathyroid tumor_NbHPA Homo sapiens cDNA clone IMAGE:1388270 3'  |
| 11277                  | 24344                 |                   | 1.77                 | 3.0E-54                                       | 11434808                 | NT                            | Homo sapiens golgi autolysosome, golgi subfamily a, 5 (GOLGA5), mRNA   |
| 11341                  | 24404                 | 38053             | 4.01                 | 3.0E-54                                       | BF345600.1               | EST_HUMAN                     | 602019408F1 NC1 CGAP Bm87 Homo sapiens cDNA clone IMAGE:4155121 5'   |
| 11650                  | 24729                 | 38421             | 2.88                 | 3.0E-54                                       | AA393382.1               | EST_HUMAN                     | z170f12.1 Soares testis_NHT Homo sapiens cDNA clone IMAGE:727727 5' similar to TR-G101315  |
| 12338                  | 25243                 | 32110             | 1.32                 | 3.0E-54                                       | AW054559.1               | EST_HUMAN                     | G191315 ANDROGEN-DEPENDENT EXPRESSED PROTEIN.;   |
| 12379                  | 26149                 |                   | 3.18                 | 3.0E-54                                       | AW748955.1               | EST_HUMAN                     | EST368828 MAGC resequences, MAGC Homo sapiens cDNA   |
| 659                    | 13845                 | 26871             | 17.97                | 2.0E-54                                       | 5031800                  | NT                            | RC1-BT0313-131189-011-609 BT0313 Homo sapiens cDNA   |
| 1396                   | 14550                 | 27825             | 1.54                 | 2.0E-54                                       | 4507164                  | NT                            | Homo sapiens killer cell lectin-like receptor subfamily G, member 1 (KLRG1), mRNA  |
| 2604                   | 15727                 | 28846             | 1.25                 | 2.0E-54                                       | AW163175.1               | EST_HUMAN                     | Homo sapiens nuclear antigen Sp100 (SP100) mRNA  |
| 2656                   | 15787                 | 28903             | 2.25                 | 2.0E-54                                       | AL163210.2               | NT                            | aa82p03.y1 Schneider fetal brain 00004 Homo sapiens cDNA clone IMAGE:2783764 5' similar to SW:CUL1_HUMAN Q13016 CULLIN HOMOLOG 1;        |
| 2660                   | 16137                 | 28155             | 1.95                 | 2.0E-54                                       | AW057924.1               | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C010  |
| 3392                   | 16562                 | 28577             | 0.8                  | 2.0E-54                                       | AJ278314.1               | NT                            | WY60b12.x1 Soares NSF_F8_9W_OT_PA_P_S1 Homo sapiens cDNA clone IMAGE:2552927 3' similar to TR:Q82084 Q82084 PHOSPHOLIPASE C NEIGHBORING; |
| 3638                   | 16802                 |                   | 6.1                  | 2.0E-54                                       | AA532825.1               | EST_HUMAN                     | Homo sapiens mRNA for phospholipase C-beta-1b (PLCB1 gene)   |
| 4321                   | 17484                 |                   | 1.74                 | 2.0E-54                                       | 4502842                  | NT                            | nt45g09.s1 NC1 CGAP_P19 Homo sapiens cDNA clone IMAGE:985488 similar to gb:X53777 80S  |
| 4563                   | 17701                 |                   | 7.1                  | 2.0E-54                                       | AF208161.1               | NT                            | RIBOSOMAL PROTEIN L23 (HUMAN);   |
| 5591                   | 18786                 | 31833             | 2.66                 | 2.0E-54                                       | 4758069                  | NT                            | Homo sapiens chaperonin containing T-complex subunit 6 (CCT6) mRNA   |
| 5720                   | 18913                 | 32209             | 1.21                 | 2.0E-54                                       | BE047884.1               | EST_HUMAN                     | Homo sapiens syncytin precursor, mRNA, complete cds  |
| 5882                   | 19071                 | 32379             | 3.99                 | 2.0E-54                                       | 11428657                 | NT                            | Homo sapiens small inducible cytokine subfamily A (Cys-Cys), member 14 (SCYA14) mRNA   |
| 5982                   | 19167                 | 32487             | 11.29                | 2.0E-54                                       | AB046811.1               | NT                            | tz43c11.y1 NC1 CGAP Bm82 Homo sapiens cDNA clone IMAGE:2291348 5'  |
| 5982                   | 19167                 | 32488             | 11.29                | 2.0E-54                                       | AB046811.1               | NT                            | Homo sapiens KIAA0100 gene product (KIAA0100), mRNA  |
| 6796                   | 19951                 | 33351             | 1.63                 | 2.0E-54                                       | AF006915.1               | NT                            | Homo sapiens mRNA for KIAA1591 protein, partial cds  |
| 6950                   | 20263                 | 33701             | 0.68                 | 2.0E-54                                       | AB023212.1               | NT                            | Homo sapiens EV15 homolog mRNA, complete cds   |
| 6950                   | 20263                 | 33702             | 0.68                 | 2.0E-54                                       | AB023212.1               | NT                            | Homo sapiens mRNA for KIAA0895 protein, partial cds  |
| 7273                   | 20356                 | 33810             | 8.33                 | 2.0E-54                                       | 11428544                 | NT                            | Homo sapiens neurofibronin 1 (neurofibromatosis, von Recklinghausen disease, Watson disease) (NF1), mRNA                                 |
| 8828                   | 22869                 | 36451             | 3.98                 | 2.0E-54                                       | AB001025.1               | NT                            | Homo sapiens mRNA for brain ryanodine receptor, complete cds   |
| 10213                  | 23249                 | 36838             | 1.14                 | 2.0E-54                                       | 11429127                 | NT                            | Homo sapiens Janus kinase 2 (a protein tyrosine kinase) (JAK2), mRNA   |
| 10326                  | 23361                 | 36871             | 0.76                 | 2.0E-54                                       | 11416762                 | NT                            | Homo sapiens serologically defined colon cancer antigen 10 (SDCCAG10), mRNA  |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|--|
| 10326                  | 23361                 | 36872             | 0.76                 | 2.0E-54                                       | 11418762                 | NT                            | Homo sapiens serologically defined colon cancer antigen 10 (SDCCAG10), mRNA  |
| 10841                  | 23874                 | 37494             | 0.46                 | 2.0E-54                                       | AB007831.1               | NT                            | Homo sapiens mRNA for KIAA0462 protein, partial cds  |
| 11275                  | 18951                 | 33351             | 1.46                 | 2.0E-54                                       | AF008916.1               | NT                            | Homo sapiens EV15 homolog mRNA, complete cds   |
| 12027                  | 25011                 |                   | 1.72                 | 2.0E-54                                       | 7657454                  | NT                            | Homo sapiens pscadillo (zabrafish) homolog 1, containing BRCT domain (PES1), mRNA  |
| 12853                  | 25591                 | 31970             | 4.38                 | 2.0E-54                                       | 8567387                  | NT                            | Homo sapiens period (Drosophila) homolog 3 (PER3), mRNA  |
| 4587                   | 17724                 |                   | 1.65                 | 1.0E-54                                       | BF315418.1               | EST_HUMAN                     | 601888230F1 NIH_MGC_19 Homo sapiens cDNA clone IMAGE:4128535 5'  |
| 8927                   | 22006                 | 35545             | 0.5                  | 1.0E-54                                       | 11417222                 | NT                            | Homo sapiens similar to nuclear factor related to kappa B binding protein (H. sapiens) (LOC83182), mRNA                                  |
| 10459                  | 23494                 | 37105             | 0.52                 | 1.0E-54                                       | AA412409.1               | EST_HUMAN                     | zu10609.t1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:731484 5'   |
| 10459                  | 23494                 | 37106             | 0.52                 | 1.0E-54                                       | AA412409.1               | EST_HUMAN                     | zu10609.t1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:731484 5'   |
| 13086                  | 25709                 |                   | 2.33                 | 1.0E-54                                       | AU077341.1               | EST_HUMAN                     | AU077341 Sugano cDNA library Homo sapiens cDNA clone Zv6C880 similar to 5'-end region of Human gamma-glutamyl transpeptidase mRNA, 5 end |
| 10588                  | 23603                 | 37208             | 1.02                 | 9.0E-55                                       | BE081469.1               | EST_HUMAN                     | QV2-BT0635-160400-143-h12 BT0635 Homo sapiens cDNA   |
| 1344                   | 14500                 |                   | 1.59                 | 8.0E-55                                       | Y07829.2                 | NT                            | Homo sapiens RFB30 gene for RING finger protein  |
| 1348                   | 14503                 |                   | 2.77                 | 8.0E-55                                       | Y07829.2                 | NT                            | Homo sapiens RFB30 gene for RING finger protein  |
| 11471                  | 24530                 |                   | 1.83                 | 8.0E-55                                       | AW409714.1               | EST_HUMAN                     | fh02a02.x1 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:2860907 5'   |
| 9004                   | 22083                 |                   | 0.48                 | 7.0E-55                                       | AW103839.1               | EST_HUMAN                     | xd78-c02.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone IMAGE:2803522 3' similar to TR-O60365  |
| 9383                   | 22458                 | 36021             | 1.28                 | 7.0E-55                                       | AA893581.1               | EST_HUMAN                     | O60365 FOS39554_1.;  |
| 9416                   | 22490                 | 36055             | 1.71                 | 7.0E-55                                       | AU139309.1               | EST_HUMAN                     | ak28a11.s1 Soares_testis_NHT Homo sapiens cDNA clone IMAGE:1407260 3'  |
| 11485                  | 24544                 | 38215             | 8.08                 | 7.0E-55                                       | AI561050.1               | EST_HUMAN                     | AU139309 PLACE1 Homo sapiens cDNA clone PLACE1011576 5'  |
| 11485                  | 24544                 | 38216             | 8.08                 | 7.0E-55                                       | AI561050.1               | EST_HUMAN                     | tg29f09.x1 NCI_CGAP_U1 Homo sapiens cDNA clone IMAGE:2210249 3'  |
| 12726                  | 25911                 | 31860             | 1.18                 | 7.0E-55                                       | BE670608.1               | EST_HUMAN                     | tg29f09.x1 NCI_CGAP_U1 Homo sapiens cDNA clone IMAGE:2210249 3'  |
| 13050                  | 28063                 |                   | 6.37                 | 7.0E-55                                       | H23398.1                 | EST_HUMAN                     | 7637c01.x1 NCI_CGAP_Lu24 Homo sapiens cDNA clone IMAGE:3284840 3'  |
| 11804                  | 24794                 | 38492             | 1.98                 | 6.0E-55                                       | AB040334.1               | NT                            | ym5/g07.t1 Soares Infant brain 1N1B Homo sapiens cDNA clone IMAGE:52444 5'   |
| 1810                   | 14959                 | 28051             | 1.21                 | 5.0E-55                                       | AA704971.1               | EST_HUMAN                     | Homo sapiens mRNA for KIAA1501 protein, partial cds  |
| 1810                   | 14959                 | 28052             | 1.21                 | 5.0E-55                                       | AA704971.1               | EST_HUMAN                     | z95b09.s1 Soares_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:462617 3'   |
| 4894                   | 18024                 | 31010             | 1.51                 | 5.0E-55                                       | AW206021.1               | EST_HUMAN                     | z95b09.s1 Soares_fetal_liver_spleen_1NFLS_S1 Homo sapiens cDNA clone IMAGE:462617 3'   |
| 6670                   | 19829                 | 33217             | 1.49                 | 6.0E-55                                       | 4502240                  | NT                            | UJH-B11-efy-g-09-0-U1.s1 NCI_CGAP_Sub3 Homo sapiens cDNA clone IMAGE:2725536 3'  |
| 6670                   | 19829                 | 33218             | 1.49                 | 6.0E-55                                       | 4502240                  | NT                            | Homo sapiens arylsulfinatase E (chondrodysplasia punctata 1) (ARSE), mRNA  |
| 6805                   | 25833                 | 33360             | 1.08                 | 5.0E-55                                       | 4505952                  | NT                            | Homo sapiens arylsulfinatase E (chondrodysplasia punctata 1) (ARSE), mRNA  |
| 6805                   | 25833                 | 33361             | 1.08                 | 5.0E-55                                       | 4505952                  | NT                            | Homo sapiens paracoxinase 2 (PON2) mRNA, and translated products   |
| 7182                   | 20314                 | 33757             | 1.03                 | 5.0E-55                                       | 7382477                  | NT                            | Homo sapiens paracoxinase 2 (PON2) mRNA, and translated products   |
| 7446                   | 20523                 | 33986             | 0.72                 | 6.0E-55                                       | 11434422                 | NT                            | Homo sapiens Rho GTPase activating protein 6 (ARHGAP6), transcript variant 5, mRNA   |
|                        |                       |                   |                      |   |                          |                               | Homo sapiens speckle-type POZ protein (SPOP), mRNA   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 9244                   | 22321                 | 36966             | 2.3                  | 5.0E-55                                       | 4506302                  | NT                            | Homo sapiens protein tyrosine phosphatase, receptor type, alpha polypeptide (PTPRA) mRNA  |
| 9520                   | 22585                 |                   | 0.91                 | 5.0E-55                                       | BE064388.1               | EST_HUMAN                     | RC4-BT0310-110300-015-F10 BT0310 Homo sapiens cDNA  |
| 10243                  | 23278                 | 36872             | 1.53                 | 5.0E-55                                       | AB014511.1               | NT                            | Homo sapiens mRNA for KIAA0611 protein, partial cds   |
| 10243                  | 23278                 | 36873             | 1.53                 | 5.0E-55                                       | AB014511.1               | NT                            | Homo sapiens mRNA for KIAA0611 protein, partial cds   |
| 10427                  | 23462                 | 37089             | 1.13                 | 5.0E-55                                       | 5453765                  | NT                            | Homo sapiens nel (chicken)-like 2 (NEL2), mRNA  |
| 11502                  | 24580                 | 38236             | 1.3                  | 5.0E-55                                       | 11421849                 | NT                            | Homo sapiens SKAP55 homologue (SKAP-HOM), mRNA  |
| 11502                  | 24580                 | 38237             | 1.3                  | 5.0E-55                                       | 11421849                 | NT                            | Homo sapiens SKAP55 homologue (SKAP-HOM), mRNA  |
| 12421                  | 25298                 |                   | 1.73                 | 5.0E-55                                       | 11417972                 | NT                            | Homo sapiens pescadillo (zebrafish) homolog 1, containing BRCT domain (PES1), mRNA  |
| 56                     | 18004                 | 26310             | 2.24                 | 4.0E-55                                       | AW957994.1               | EST_HUMAN                     | EST370084 MAGI resequences, MAGI Homo sapiens cDNA  |
| 689                    | 13673                 | 26906             | 32.17                | 4.0E-55                                       | 4826973                  | NT                            | Homo sapiens RNA binding motif protein, Y chromosome, family 1, member A1 (RBMY1A1) mRNA  |
| 1472                   | 14626                 | 27710             | 2.15                 | 4.0E-55                                       | 7661713                  | NT                            | Homo sapiens predicted osteoblast protein (GS3786), mRNA  |
| 1472                   | 14626                 | 27711             | 2.15                 | 4.0E-55                                       | 7661713                  | NT                            | Homo sapiens predicted osteoblast protein (GS3786), mRNA  |
| 1544                   | 14896                 |                   | 1.72                 | 4.0E-55                                       | BF061411.1               | EST_HUMAN                     | 7652x10.x1 Soares_NSF_F8_9W_OT_PA_P_31 Homo sapiens cDNA clone IMAGE:3890043 3' similar to contains L1.13 L1 repetitive element |
| 2081                   | 15221                 | 28341             | 2.19                 | 4.0E-55                                       | 4508180                  | NT                            | Homo sapiens proteasome (prosome, macropain) subunit, alpha type, 2 (PSMA2) mRNA  |
| 2081                   | 15221                 | 28342             | 2.19                 | 4.0E-55                                       | 4508180                  | NT                            | Homo sapiens proteasome (prosome, macropain) subunit, alpha type, 2 (PSMA2) mRNA  |
| 2151                   | 15287                 | 28412             | 8.38                 | 4.0E-55                                       | 4503314                  | NT                            | Homo sapiens diacylglycerol kinase, gamma (90kD) (DGKG) mRNA  |
| 2151                   | 15287                 | 28413             | 8.38                 | 4.0E-55                                       | 4503314                  | NT                            | Homo sapiens diacylglycerol kinase, gamma (90kD) (DGKG) mRNA  |
| 2384                   | 15515                 | 28844             | 3.02                 | 4.0E-55                                       | 4507794                  | NT                            | Homo sapiens ubiquitin-conjugating enzyme E2 variant 1 (UBE2V1) mRNA  |
| 8539                   | 21620                 |                   | 9.85                 | 4.0E-55                                       | AL163210.2               | NT                            | Homo sapiens chromosome 21 segment HS21C010   |
| 11605                  | 24563                 |                   | 2.31                 | 4.0E-55                                       | W28189.1                 | EST_HUMAN                     | 43c5 Human retina cDNA randomly primed sublibrary Homo sapiens cDNA   |
| 12937                  | 25244                 |                   | 1.82                 | 4.0E-55                                       | BF303941.1               | EST_HUMAN                     | 60186575F2 NIH_MGC_17 Homo sapiens cDNA clone IMAGE:4120338 5'  |
| 6731                   | 19887                 | 33279             | 0.68                 | 3.0E-55                                       | AA077166.1               | EST_HUMAN                     | 7808A09 Chromosome 7 Fetal Brain cDNA Library Homo sapiens cDNA clone 7B08A09   |
| 12273                  | 25205                 |                   | 4.18                 | 3.0E-55                                       | BE176519.1               | EST_HUMAN                     | PM1-HT0603-060300-001-g08 HT0603 Homo sapiens cDNA  |
| 13103                  | 25719                 |                   | 3.53                 | 3.0E-55                                       | AL163284.2               | NT                            | Homo sapiens chromosome 21 segment HS21C084   |
| 388                    | 13594                 | 26630             | 1.69                 | 2.0E-55                                       | X57147.1                 | NT                            | Human endogenous retrovirus pH-E.1 (ERV9)   |
| 565                    | 13757                 |                   | 1.08                 | 2.0E-55                                       | M10976.1                 | NT                            | Human endogenous retroviral DNA (4-1), complete retroviral segment  |
| 666                    | 13852                 | 26880             | 3.98                 | 2.0E-55                                       | 4507298                  | NT                            | Homo sapiens syntaxin-binding protein 1 (STXB1) mRNA, and translated products   |
| 3023                   | 15199                 | 29222             | 0.89                 | 2.0E-55                                       | 4507768                  | NT                            | Homo sapiens ubiquitin protein ligase E3A (human papilloma virus E6-associated protein, Angelman syndrome) (UBE3A) mRNA         |
| 4897                   | 18027                 | 31014             | 3.51                 | 2.0E-55                                       | BE19888.1                | EST_HUMAN                     | GM1-HT0876-150800-357-q03 HT0876 Homo sapiens cDNA  |
| 7673                   | 25851                 | 34217             | 0.85                 | 2.0E-55                                       | AW501988.1               | EST_HUMAN                     | UI-HF-BND-als-4-06-Q-ULF1 NIH_MGC_50 Homo sapiens cDNA clone IMAGE:3078275 5'   |
| 8285                   | 22342                 | 35802             | 0.48                 | 2.0E-55                                       | BF224452.1               | EST_HUMAN                     | h76h08.x1 NC1 CGAP_Kd11 Homo sapiens cDNA clone IMAGE:3134463 3'  |
| 8285                   | 22342                 | 35893             | 0.48                 | 2.0E-55                                       | BF224452.1               | EST_HUMAN                     | h76h08.x1 NC1 CGAP_Kd11 Homo sapiens cDNA clone IMAGE:3134463 3'  |

Table 4

## Single Exon Probes Expressed In Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 9381                   | 22436                 |                   | 4.33                 | 2.0E-55                                       | A002836.1                | EST_HUMAN                     | arr68h05.s1 Stratiogene schizo brain S11 Homo sapiens cDNA clone IMAGE:1684185 3' similar to contains<br>TTR-D2 THR repetitive element; |
| 9442                   | 22510                 |                   | 0.67                 | 2.0E-55                                       | BE007969.1               | EST_HUMAN                     | QV0-BN0147-280400-213-g06 BN0147 Homo sapiens cDNA  |
| 11192                  | 24261                 | 37897             | 2.33                 | 2.0E-55                                       | AU118944.1               | EST_HUMAN                     | AU118944 HEMBA1 Homo sapiens cDNA clone HEMBA1005983 5'   |
| 13177                  | 16198                 | 29222             | 1.34                 | 2.0E-55                                       | 4507788                  | NT                            | Homo sapiens ubiquitin protein ligase E3A (human papilloma virus E6-associated protein, Angelman<br>syndrome) (UBES3A) mRNA             |
| 99                     | 13334                 | 28361             | 1.82                 | 1.0E-55                                       | 4505060                  | NT                            | Homo sapiens mannose-8-phosphate receptor (cation dependant) (M8PR) mRNA  |
| 194                    | 13417                 | 26446             | 40.5                 | 1.0E-55                                       | U06823.1                 | NT                            | Oryzobagus curvicaulus New Zealand white elongation factor 1 alpha (Rabelfa2) mRNA, complete cds  |
| 598                    | 13779                 | 26786             | 1.88                 | 1.0E-55                                       | A028718.1                | EST_HUMAN                     | ov85g09.X1 Soares testis NHT Homo sapiens cDNA clone IMAGE:1644160 3'   |
| 1173                   | 14336                 | 27392             | 3.82                 | 1.0E-55                                       | AB020710.1               | NT                            | Homo sapiens mRNA for KIAA0903 protein, partial cds   |
| 2006                   | 15146                 | 28251             | 2.33                 | 1.0E-55                                       | BE277861.1               | EST_HUMAN                     | 601120116F1 NIH_MGC_20 Homo sapiens cDNA clone IMAGE:2987027 5'   |
| 2006                   | 15146                 | 28262             | 2.33                 | 1.0E-55                                       | BE277861.1               | EST_HUMAN                     | 601120116F1 NIH_MGC_20 Homo sapiens cDNA clone IMAGE:2987027 5'   |
| 2401                   | 15532                 |                   | 4.85                 | 1.0E-55                                       | 5803174                  | NT                            | Homo sapiens SMA3 (SMA3), mRNA  |
| 2415                   | 15597                 | 28673             | 1.44                 | 1.0E-55                                       | AF000980.1               | NT                            | Homo sapiens testis-specific Testis Transcript Y 1 (TTY1) mRNA, partial cds   |
| 2586                   | 16711                 | 28829             | 19.88                | 1.0E-55                                       | X13111.1                 | NT                            | Human mRNA for HLA-A11E, a MHC class I molecule (major histocompatibility complex)  |
| 2620                   | 15743                 | 28857             | 5.51                 | 1.0E-55                                       | AB007866.2               | NT                            | Homo sapiens mRNA for KIAA0408 protein, partial cds   |
| 2620                   | 16743                 | 28858             | 5.51                 | 1.0E-55                                       | AB007866.2               | NT                            | Homo sapiens mRNA for KIAA0408 protein, partial cds   |
| 2677                   | 15797                 | 28914             | 3.37                 | 1.0E-55                                       | L64057.1                 | NT                            | Homo sapiens CLP mRNA, partial cds  |
| 2850                   | 15864                 | 29073             | 1.22                 | 1.0E-55                                       | AB033046.1               | NT                            | Homo sapiens mRNA for KIAA1219 protein, partial cds   |
| 3495                   | 16662                 | 29674             | 1.16                 | 1.0E-55                                       | W28189.1                 | EST_HUMAN                     | 43-c5 Human retina cDNA randomly primed sublibrary Homo sapiens cDNA  |
| 4097                   | 17282                 | 30253             | 4.28                 | 1.0E-55                                       | AL163267.2               | NT                            | Homo sapiens chromosome 21 segment HS21C057   |
| 4409                   | 17551                 | 30536             | 1.1                  | 1.0E-55                                       | AL163210.2               | NT                            | Homo sapiens chromosome 21 segment HS21C010   |
| 4853                   | 17886                 |                   | 0.94                 | 1.0E-55                                       | N77261.1                 | EST_HUMAN                     | yv4403.11 Soares fetal liver spleen 1N1FLS Homo sapiens cDNA clone IMAGE:245620 5'  |
| 4949                   | 18079                 | 31054             | 1.15                 | 1.0E-55                                       | AB037163.1               | NT                            | Homo sapiens DSCR6b mRNA, complete cds  |
| 4949                   | 18079                 | 31055             | 1.15                 | 1.0E-55                                       | AB037163.1               | NT                            | Homo sapiens DSCR6b mRNA, complete cds  |
| 5614                   | 18808                 | 31876             | 0.65                 | 1.0E-55                                       | AF119856.1               | NT                            | Homo sapiens PRO1851 mRNA, complete cds   |
| 6401                   | 19570                 | 32832             | 7.26                 | 1.0E-55                                       | 11433046                 | NT                            | Homo sapiens hct domain and RLD 2 (HERC2), mRNA   |
| 6401                   | 19570                 | 32833             | 7.26                 | 1.0E-55                                       | 11433046                 | NT                            | Homo sapiens hct domain and RLD 2 (HERC2), mRNA   |
| 8178                   | 21280                 | 34762             | 1.7                  | 1.0E-55                                       | 11432984                 | NT                            | Homo sapiens discs, large (Drosophila) homolog 2 (chapsyn-110) (DLG2), mRNA   |
| 8178                   | 21280                 | 34763             | 1.7                  | 1.0E-55                                       | 11432984                 | NT                            | Homo sapiens discs, large (Drosophila) homolog 2 (chapsyn-110) (DLG2), mRNA   |
| 8266                   | 21348                 | 34853             | 0.49                 | 1.0E-55                                       | 11421649                 | NT                            | Homo sapiens SKAP55 homologue (SKAP-HOM), mRNA  |
| 8273                   | 21365                 | 34872             | 0.93                 | 1.0E-55                                       | AF224492.1               | NT                            | Homo sapiens phospholipid scramblase 1 gene, complete cds   |
| 8273                   | 21365                 | 34873             | 0.93                 | 1.0E-55                                       | AF224492.1               | NT                            | Homo sapiens phospholipid scramblase 1 gene, complete cds   |



Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 11152                  | 24223                 | 37851             | 2.41                 | 1.0E-56                                       | AL163210.2               | NT                            | Homo sapiens chromosome 21 segment HS21C010   |
| 11152                  | 24223                 | 37852             | 2.41                 | 1.0E-56                                       | AL163210.2               | NT                            | Homo sapiens chromosome 21 segment HS21C010   |
| 11733                  | 23919                 | 37544             | 1.86                 | 1.0E-55                                       | U50950.1                 | NT                            | Human infant brain unknown product mRNA, complete cds   |
| 11755                  | 23941                 | 37567             | 1.34                 | 1.0E-56                                       | T10045.1                 | EST_HUMAN                     | seq1676 b4-HB3MA Co8-HAP-F1 Homo sapiens cDNA clone b4-HB3MA-COT8-HAP-F161 5' similar to similar to Chinese Hamster DHFR-overexpressed protein mRNA |
| 11789                  | 24779                 | 38478             | 2.67                 | 1.0E-55                                       | 8822743                  | NT                            | Homo sapiens hypothetical protein FLJ10891 (FLJ10891), mRNA   |
| 11878                  | 24854                 | 38560             | 1.78                 | 1.0E-55                                       | 10567821                 | NT                            | Homo sapiens DNA-binding protein (LOC56242), mRNA   |
| 7522                   | 20585                 | 34070             | 1.85                 | 9.0E-56                                       | BE378074.1               | EST_HUMAN                     | 601237702F1 NIH_MGC_44 Homo sapiens cDNA clone IMAGE:3608552 5'   |
| 11545                  | 24601                 | 38277             | 1.34                 | 8.0E-56                                       | AL163209.2               | NT                            | Homo sapiens chromosome 21 segment HS21C009   |
| 2783                   | 15909                 | 23017             | 7.08                 | 7.0E-56                                       | H18934.1                 | EST_HUMAN                     | yn62g03.1 Scores adult brain N254HB55Y Homo sapiens cDNA clone IMAGE:173044 5' similar to contains THIR repetitive element ;                        |
| 7818                   | 20873                 | 34371             | 1.93                 | 7.0E-56                                       | AW361213.1               | EST_HUMAN                     | RC1-CT0252-231099-019-507 CT0252 Homo sapiens cDNA  |
| 7818                   | 20873                 | 34372             | 1.98                 | 7.0E-56                                       | AW361213.1               | EST_HUMAN                     | RC1-CT0252-231099-019-507 CT0252 Homo sapiens cDNA  |
| 1727                   | 14877                 | 27968             | 2.7                  | 5.0E-56                                       | AW997712.1               | EST_HUMAN                     | RC3-BN0053-170200-011-401 BN0053 Homo sapiens cDNA  |
| 9362                   | 22437                 | 35965             | 0.71                 | 5.0E-56                                       | AW015507.1               | EST_HUMAN                     | UIH-B10p-eau-e-05-Q-J1.a1 NCJ_CGAP_Sub2 Homo sapiens cDNA clone IMAGE:2710544 3'  |
| 10589                  | 23634                 | 31550             | 1.35                 | 5.0E-56                                       | W28189.1                 | EST_HUMAN                     | 43c-5 Human retina cDNA randomly primed sublibrary Homo sapiens cDNA  |
| 12513                  | 28137                 | 26268             | 2.47                 | 5.0E-56                                       | H55099.1                 | EST_HUMAN                     | CHR220038 Chromosome 22 exon Homo sapiens cDNA clone C22_56 5'  |
| 28                     | 13266                 | 26268             | 8.94                 | 4.0E-56                                       | AF141349.1               | NT                            | Homo sapiens beta-tubulin mRNA, complete cds  |
| 28                     | 13266                 | 26269             | 8.94                 | 4.0E-56                                       | AF141349.1               | NT                            | Homo sapiens beta-tubulin mRNA, complete cds  |
| 2773                   | 15888                 | 28968             | 3.61                 | 4.0E-56                                       | 4507728                  | NT                            | Homo sapiens tubulin, beta polypeptide (TUBB) mRNA  |
| 2773                   | 15888                 | 28969             | 3.61                 | 4.0E-56                                       | 4507728                  | NT                            | Homo sapiens X-linked arylidic ectodermal dysplasia protein gene (EDA), exon 2 and flanking repeat regions  |
| 2873                   | 13732                 | 26756             | 9.22                 | 4.0E-56                                       | AF003528.1               | NT                            | Homo sapiens uncharacterized bone marrow protein BM031 mRNA, complete cds   |
| 6387                   | 19556                 | 32915             | 4.94                 | 4.0E-56                                       | AF217508.1               | NT                            | Homo sapiens uncharacterized bone marrow protein BM031 mRNA, complete cds   |
| 6387                   | 19556                 | 32916             | 4.94                 | 4.0E-56                                       | AF217508.1               | NT                            | Homo sapiens lymphocyte-specific protein 1 (LSP1) gene, LSP1-7 allele, partial cds  |
| 10724                  | 23757                 | 37384             | 1.89                 | 4.0E-56                                       | AF043349.1               | NT                            | Homo sapiens lymphocyte-specific protein 1 (LSP1) gene, LSP1-7 allele, partial cds  |
| 11163                  | 24234                 | 37863             | 7.73                 | 4.0E-56                                       | AI498066.1               | EST_HUMAN                     | hm65g12.x1 NCJ_CGAP_Bm25 Homo sapiens cDNA clone IMAGE:2163046 3'   |
| 11163                  | 24234                 | 37864             | 7.73                 | 4.0E-56                                       | AI498066.1               | EST_HUMAN                     | hm65g12.x1 NCJ_CGAP_Bm25 Homo sapiens cDNA clone IMAGE:2163046 3'   |
| 1372                   | 14527                 | 27801             | 2.69                 | 3.0E-56                                       | 8924029                  | NT                            | Homo sapiens hypothetical protein PRO1304 (PRO1304), mRNA   |
| 1804                   | 14953                 | 28047             | 1.84                 | 3.0E-56                                       | 6912743                  | NT                            | Homo sapiens 5'-3' exoribonuclease 2 (XRN2), mRNA   |
| 2217                   | 15351                 | 28482             | 1.6                  | 3.0E-56                                       | 6912697                  | NT                            | Homo sapiens oncogene TC21 (TC21), mRNA   |
| 3195                   | 16370                 | 29378             | 1.67                 | 3.0E-56                                       | AA325826.1               | EST_HUMAN                     | EST28889 Cerebellum II Homo sapiens cDNA 5' end   |
| 3195                   | 16370                 | 29377             | 1.67                 | 3.0E-56                                       | AA325826.1               | EST_HUMAN                     | EST28889 Cerebellum II Homo sapiens cDNA 5' end   |
| 3939                   | 17098                 |                   | 2.81                 | 3.0E-56                                       | AF055068.1               | NT                            | Homo sapiens MHC class 1 region   |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top)<br>Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|--|--------------------------|-------------------------------|---|
| 4507                   | 17849                 | 30834             | 0.87                 | 3.0E-56  | 7657042                  | NT                            | Homo sapiens Down syndrome candidate region 1 (DSOR1), mRNA                                     |
| 4544                   | 17882                 | 30864             | 4.42                 | 3.0E-56  | AL163268.2               | NT                            | Homo sapiens chromosome 21 segment HS21C068   |
| 4686                   | 17830                 | 30816             | 2.4                  | 3.0E-56  | 5902085                  | NT                            | Homo sapiens superfamily viral activity 2 (S. cerevisiae homolog)-like (SKIVL), mRNA            |
| 5801                   | 18891                 | 32283             | 1.5                  | 3.0E-56  | 4759163                  | NT                            | Homo sapiens sparc/osteonecin, cwc and kazal-like domains proteoglycan (testican) (SPOCK), mRNA |
| 5801                   | 18891                 | 32284             | 1.5                  | 3.0E-56  | 4759163                  | NT                            | Homo sapiens sparc/osteonecin, cwc and kazal-like domains proteoglycan (testican) (SPOCK), mRNA |
| 7014                   | 20150                 | 33571             | 5.5                  | 3.0E-56  | 11421124                 | NT                            | Homo sapiens lysosomal-associated membrane protein 2 (LAMP2), mRNA                              |
| 7476                   | 20561                 | 34023             | 2.07                 | 3.0E-56  | 4504970                  | NT                            | Homo sapiens LIM binding domain 2 (LDB2), mRNA  |
| 7476                   | 20561                 | 34024             | 2.07                 | 3.0E-56  | 4504970                  | NT                            | Homo sapiens LIM binding domain 2 (LDB2), mRNA  |
| 8016                   | 22086                 | 35836             | 6.11                 | 3.0E-56  | 11418704                 | NT                            | Homo sapiens bone morphogenetic protein 5 (BMP5), mRNA  |
| 10018                  | 23056                 | 36852             | 0.9                  | 3.0E-56  | D63478.2                 | NT                            | Homo sapiens mRNA for KIAA0145 protein, partial cds   |
| 10698                  | 23731                 | 37336             | 1.39                 | 3.0E-56  | 11434956                 | NT                            | Homo sapiens KIAA0317 gene product (KIAA0317), mRNA   |
| 10880                  | 24059                 | 37883             | 2.62                 | 3.0E-56  | AB042558.1               | NT                            | Homo sapiens mRNA, similar to rat myomegalin, complete cds                                      |
| 11594                  | 24847                 | 38330             | 4.64                 | 3.0E-56  | 5902013                  | NT                            | Homo sapiens nuclear pore complex interacting protein (NPIP), mRNA                              |
| 11594                  | 24847                 | 38331             | 4.64                 | 3.0E-56  | 5902013                  | NT                            | Homo sapiens nuclear pore complex interacting protein (NPIP), mRNA                              |
| 12377                  | 25268                 | 32075             | 1.62                 | 3.0E-56  | 11434876                 | NT                            | Homo sapiens caveolin 3 (CAV3), mRNA  |
| 12377                  | 25268                 | 32076             | 1.62                 | 3.0E-56  | 11434876                 | NT                            | Homo sapiens caveolin 3 (CAV3), mRNA  |
| 637                    | 13730                 |                   | 11.95                | 2.0E-56  | AA198818.1               | EST_HUMAN                     | z652a08.s1 Stratiogene neuroepithelium (8837231) Homo sapiens cDNA clone IMAGE:645206 3'        |
| 761                    | 18021                 | 26976             | 1.18                 | 2.0E-56  | BE064386.1               | EST_HUMAN                     | RC4-BT0310-110300-016-F10 BT0310 Homo sapiens cDNA  |
| 761                    | 18021                 | 26976             | 1.18                 | 2.0E-56  | BE064386.1               | EST_HUMAN                     | RC4-BT0310-110300-015-F10 BT0310 Homo sapiens cDNA  |
| 3053                   | 16229                 | 29249             | 0.94                 | 2.0E-56  | AB037835.1               | NT                            | Homo sapiens mRNA for KIAA1414 protein, partial cds   |
| 3391                   | 16561                 |                   | 0.84                 | 2.0E-56  | AB008881.1               | NT                            | Homo sapiens gene for activin receptor type IIB, complete cds                                   |
| 3824                   | 18788                 | 29805             | 1.26                 | 2.0E-56  | AV703184.1               | EST_HUMAN                     | AV703184 ADB Homo sapiens cDNA clone ADBCF-G10 5'   |
| 7239                   | 20323                 | 33767             | 1.39                 | 2.0E-56  | AV703184.1               | EST_HUMAN                     | Homo sapiens SET domain and mariner transposase fusion gene (SETMAR) mRNA                       |
| 1003                   | 14174                 |                   | 3.01                 | 1.0E-56  | AF190830.1               | NT                            | Macaca fascicularis protein tyrosine phosphatase (PRL-1) mRNA, complete cds                     |
| 3765                   | 18926                 | 29828             | 1.84                 | 1.0E-56  | AW589833.1               | EST_HUMAN                     | hg23G11.x1 NCI_CGAP_G08 Homo sapiens cDNA clone IMAGE:2846452 3'                                |
| 3765                   | 18926                 | 29829             | 1.84                 | 1.0E-56  | AW589833.1               | EST_HUMAN                     | hg23G11.x1 NCI_CGAP_G08 Homo sapiens cDNA clone IMAGE:2846452 3'                                |
| 5145                   | 18268                 | 31238             | 1.42                 | 1.0E-56  | AB05162.1                | EST_HUMAN                     | QV-BT077-130199-079 BT077 Homo sapiens cDNA   |
| 10161                  | 23188                 |                   | 0.89                 | 1.0E-56  | AL163203.2               | NT                            | Homo sapiens chromosome 21 segment HS21C003   |
| 10254                  | 23289                 | 36886             | 1.52                 | 1.0E-56  | AW845987.1               | EST_HUMAN                     | RC2-CT0163-220989-001-E02 CT0163 Homo sapiens cDNA  |
| 642                    | 13927                 |                   | 1.39                 | 9.0E-57  | AW880885.1               | EST_HUMAN                     | QV0-OT0033-070300-162-H03 OT0033 Homo sapiens cDNA  |
| 11494                  | 24552                 | 38227             | 1.72                 | 9.0E-57  | AF228497.1               | NT                            | Homo sapiens serine protease 17 (KLK4) gene, complete cds                                       |
| 11494                  | 24552                 | 38228             | 1.72                 | 9.0E-57  | AF228497.1               | NT                            | Homo sapiens serine protease 17 (KLK4) gene, complete cds                                       |

Table 4

## Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit Descriptor  |
|------------------------|-----------------------|-------------------|----------------------|---|--------------------------|-------------------------------|---|
| 11811                  | 24801                 | 38500             | 2.2                  | 8.0E-57                                       | AB020881.1               | NT                            | Homo sapiens mRNA for cyclin B2, complete cds   |
| 14                     | 13252                 | 28252             | 1.02                 | 8.0E-57                                       | 8923349                  | NT                            | Homo sapiens hypothetical protein FLJ20371 (FLJ20371), mRNA   |
| 308                    | 13524                 | 28558             | 2.93                 | 8.0E-57                                       | AW818405.1               | EST_HUMAN                     | QV4-ST0234-181199-037-005 ST0234 Homo sapiens cDNA  |
| 907                    | 14082                 | 27147             | 7.49                 | 8.0E-57                                       | AW264939.1               | EST_HUMAN                     | 3x05d10.x1 NCI CGAP_Brn53 Homo sapiens cDNA clone IMAGE:2759251 5' similar to gb:U05875   |
| 1859                   | 16005                 | 28112             | 1.45                 | 8.0E-57                                       | AA486109.1               | EST_HUMAN                     | INTERFERON-GAMMA RECEPTOR BETA CHAIN PRECURSOR (HUMAN);   |
| 5355                   | 28034                 | 31879             | 1.92                 | 8.0E-57                                       | 11418185                 | NT                            | 2x51b12.1 Scores_testis_NHT Homo sapiens cDNA clone IMAGE:757151 5'   |
| 6529                   | 19893                 | 33066             | 0.81                 | 8.0E-57                                       | AB020705.1               | NT                            | Homo sapiens acornitase 2, mitochondrial (ACO2), mRNA   |
| 6593                   | 19753                 | 33138             | 12.82                | 8.0E-57                                       | AB023177.1               | NT                            | Homo sapiens mRNA for KIAA0888 protein, partial cds   |
| 6593                   | 19753                 | 33139             | 12.82                | 8.0E-57                                       | AB023177.1               | NT                            | Homo sapiens mRNA for KIAA0980 protein, partial cds   |
| 7607                   | 20877                 | 34152             | 0.62                 | 8.0E-57                                       | 7682263                  | NT                            | Homo sapiens mRNA for KIAA0960 protein, partial cds   |
| 7627                   | 20977                 | 34486             | 1.54                 | 8.0E-57                                       | AB020644.1               | NT                            | Homo sapiens KIAA0716 gene product (KIAA0716), mRNA   |
| 7627                   | 20977                 | 34487             | 1.54                 | 8.0E-57                                       | AB020644.1               | NT                            | Homo sapiens mRNA for KIAA0837 protein, partial cds   |
| 11768                  | 13252                 | 28252             | 3.51                 | 8.0E-57                                       | 8923349                  | NT                            | Homo sapiens mRNA for KIAA0837 protein, partial cds   |
| 12041                  | 25022                 | 38726             | 1.74                 | 8.0E-57                                       | 11433355                 | NT                            | Homo sapiens hypothetical protein FLJ20371 (FLJ20371), mRNA   |
| 12102                  | 25082                 | 38789             | 1.53                 | 8.0E-57                                       | 11431260                 | NT                            | Homo sapiens nitrin (LOC51189), mRNA  |
| 12791                  | 25528                 | 32007             | 1.87                 | 8.0E-57                                       | 11545732                 | NT                            | Homo sapiens Ras suppressor protein 1 (RSU1), mRNA  |
| 12808                  | 25528                 | 32007             | 1.94                 | 8.0E-57                                       | 11545732                 | NT                            | Homo sapiens SH3-domain binding protein 1 (SH3BP1), mRNA  |
| 1246                   | 14405                 | 27467             | 0.88                 | 7.0E-57                                       | AJ003100.1               | NT                            | Homo sapiens SH3-domain binding protein 1 (SH3BP1), mRNA  |
| 2698                   | 15817                 | 28932             | 0.97                 | 7.0E-57                                       | 7657592                  | NT                            | Homo sapiens GYS2 gene, exon 14   |
| 2698                   | 15817                 | 28933             | 0.97                 | 7.0E-57                                       | 7657592                  | NT                            | Homo sapiens sng GDS-ASSOCIATED PROTEIN (SMAP), mRNA  |
| 3344                   | 16517                 | 29532             | 0.81                 | 7.0E-57                                       | 6005979                  | NT                            | Homo sapiens sng GDS-ASSOCIATED PROTEIN (SMAP), mRNA  |
| 3982                   | 17139                 | 30143             | 3.14                 | 7.0E-57                                       | AF012872.1               | NT                            | Homo sapiens Kruppel-like factor 8 (KLF8), mRNA   |
| 3982                   | 17139                 | 30144             | 3.14                 | 7.0E-57                                       | AF012872.1               | NT                            | Homo sapiens phosphatidylinositol 4-kinase 230 (pik4230) mRNA, complete cds   |
| 13185                  | 26071                 |                   | 3.99                 | 5.0E-57                                       | AJ271735.1               | NT                            | Homo sapiens phosphatidylinositol 4-kinase 230 (pik4230) mRNA, complete cds   |
| 3949                   | 17009                 | 30010             | 8.03                 | 4.0E-57                                       | AB026998.1               | NT                            | Homo sapiens Xq pseudautosomal region; segment 1/2  |
| 827                    | 14005                 | 27062             | 0.64                 | 3.0E-57                                       | 4507798                  | NT                            | Homo sapiens DNA, DLEC1 to ORCTL4 gene region, section 1/2 (DLEC1, ORCTL3, ORCTL4 genes, complete cds)  |
| 1902                   | 14516                 |                   | 12.47                | 3.0E-57                                       | AA230279.1               | EST_HUMAN                     | Homo sapiens ubiquitin protein ligase E3A (human papilloma virus E6-associated protein, Angelman syndrome) (UBE3A) mRNA   |
| 2484                   | 15391                 | 28718             | 1.12                 | 3.0E-57                                       | AA348335.1               | EST_HUMAN                     | nc1307.st NCI CGAP_P11 Homo sapiens cDNA clone IMAGE:1008037 similar to SW_RS10_HUMAN   |
| 2768                   | 15883                 | 28982             | 1.03                 | 3.0E-57                                       | BE876822.1               | EST_HUMAN                     | P46783 40S RIBOSOMAL PROTEIN S10. ;<br>EST64770 Hippocampus II Homo sapiens cDNA 5' end<br>733b10.x1 NCI CGAP_GLL1 Homo sapiens cDNA clone IMAGE:3288443 3' similar to WP:Y47H9C.2<br>CE20263 ; |

# Single Exon Probes Expressed in Placenta

| Probe<br>SEQ ID<br>NO: | Exon<br>SEQ ID<br>NO: | ORF SEQ<br>ID NO: | Expression<br>Signal | Most Similar<br>(Top) Hit<br>BLAST E<br>Value | Top Hit<br>Accession<br>No. | Top Hit<br>Database<br>Source | Top Hit<br>Descriptor   |
|------------------------|-----------------------|-------------------|----------------------|---|-----------------------------|-------------------------------|---|
| 2768                   | 15883                 | 28993             | 1.03                 | 3.0E-57                                       | BE976922.1                  | EST_HUMAN                     | 7335101.x1 NC1_CGAP_Q1.1 Homo sapiens cDNA clone IMAGE:3286443 3' similar to WP:Y47H9C.2            |
| 3652                   | 16816                 | 28927             | 1                    | 3.0E-57                                       | AF232708.1                  | NT                            | CE20263;  |
| 3768                   | 16949                 |                   | 51.29                | 3.0E-57                                       | AW863064.1                  | EST_HUMAN                     | Homo sapiens cell-line tsA201a chloride ion current inducer protein I(Cln) gene, complete cds       |
| 6153                   | 18329                 | 32675             | 1.25                 | 3.0E-57                                       | 11225608                    | NT                            | RC3-CT0254-110300-027-110 CT0254 Homo sapiens cDNA  |
| 6251                   | 19425                 | 32771             | 3.92                 | 3.0E-57                                       | BE796537.1                  | EST_HUMAN                     | Homo sapiens angiotensin I converting enzyme (peptidyl-dipeptidase A) 2 (ACE2), mRNA                |
| 8338                   | 21419                 | 34945             | 3.25                 | 3.0E-57                                       | W28130.1                    | EST_HUMAN                     | 601588986F1 NIH_MGC_7 Homo sapiens cDNA clone IMAGE:3944302 5'                                      |
| 8363                   | 21444                 | 34966             | 1.89                 | 3.0E-57                                       | 11545798                    | NT                            | 4278 Human retina cDNA randomly primed sublibrary Homo sapiens cDNA                                 |
| 8478                   | 21557                 | 35090             | 1.99                 | 3.0E-57                                       | 11545798                    | NT                            | Homo sapiens hypothetical protein FLJ11658 (FLJ11658), mRNA   |
| 8624                   | 21704                 | 35240             | 0.78                 | 3.0E-57                                       | 11427757                    | NT                            | Homo sapiens hypothetical protein FLJ11658 (FLJ11658), mRNA   |
| 8068                   | 22138                 | 35682             | 5.14                 | 3.0E-57                                       | J05262.1                    | NT                            | Homo sapiens KIAA0849 gene product (KIAA0849), mRNA   |
| 8451                   | 22567                 | 36132             | 0.69                 | 3.0E-57                                       | AU117659.1                  | EST_HUMAN                     | Human farnesyl pyrophosphate synthetase mRNA, complete cds  |
| 8451                   | 22567                 | 36133             | 0.69                 | 3.0E-57                                       | 11545798                    | NT                            | AU117659 HEMBA1 Homo sapiens cDNA clone HEMBA1001910 5'   |
| 11148                  | 24220                 | 37847             | 2.34                 | 3.0E-57                                       | AW248374.1                  | EST_HUMAN                     | Homo sapiens hypothetical protein FLJ11658 (FLJ11658), mRNA   |
| 12394                  | 28167                 | 31654             | 6.37                 | 3.0E-57                                       | W2871.1                     | EST_HUMAN                     | 2820473.5ptm NIH_MGC_7 Homo sapiens cDNA clone IMAGE:2820473 5'                                     |
| 12982                  | 25840                 | 31984             | 1.17                 | 3.0E-57                                       | AJ003649.1                  | EST_HUMAN                     | 2b45d11.1 Soares fetal lung_NbHL19W Homo sapiens cDNA clone IMAGE:306549 5'                         |
| 1630                   | 14683                 | 27762             | 2.89                 | 2.0E-57                                       | AF246218.1                  | NT                            | AJ003649 Selected chromosome 21 cDNA library Homo sapiens cDNA clone MPIp10-1L1                     |
| 1630                   | 14683                 | 27763             | 2.89                 | 2.0E-57                                       | AF246219.1                  | NT                            | Homo sapiens SNARE protein kinase SNAK mRNA, complete cds   |
|                        |                       |                   |                      |   |                             |                               | Homo sapiens SNARE protein kinase SNAK mRNA, complete cds   |
|                        |                       |                   |                      |   |                             |                               | sk02b02.s1 Soares parathyroid_tumor_NbHPA Homo sapiens cDNA clone IMAGE:1404747 3' similar to       |
|                        |                       |                   |                      |   |                             |                               | contains Alu repetitive element; contains element MER22 repetitive element;                         |
| 2780                   | 15908                 | 29014             | 5.5                  | 2.0E-57                                       | AA845419.1                  | EST_HUMAN                     | Homo sapiens chromosome 21 segment HS21C004   |
| 3525                   | 16890                 |                   | 1.4                  | 2.0E-57                                       | AL163204.2                  | NT                            |   |
| 3641                   | 16805                 | 29818             | 0.72                 | 2.0E-57                                       | R07702.1                    | EST_HUMAN                     | ye98h01.1 Soares fetal liver spleen 1NfLS Homo sapiens cDNA clone IMAGE:125809 5'                   |
| 3641                   | 16806                 | 29819             | 0.72                 | 2.0E-57                                       | R07702.1                    | EST_HUMAN                     | ye98h01.1 Soares fetal liver spleen 1NfLS Homo sapiens cDNA clone IMAGE:125809 5'                   |
| 4304                   | 17447                 | 30433             | 0.71                 | 2.0E-57                                       | AA018298.1                  | EST_HUMAN                     | 2b40c06.1 Soares retina N2b4HR Homo sapiens cDNA clone IMAGE:361460 5'                              |
| 4304                   | 17447                 | 30434             | 0.71                 | 2.0E-57                                       | AA018298.1                  | EST_HUMAN                     | 2b40c06.1 Soares retina N2b4HR Homo sapiens cDNA clone IMAGE:361460 5'                              |
| 4632                   | 17768                 | 30749             | 7.42                 | 2.0E-57                                       | AL163283.2                  | NT                            | Homo sapiens chromosome 21 segment HS21C003   |
|                        |                       |                   |                      |   |                             |                               | 2b31c05.1 Soares retina N2b4HR Homo sapiens cDNA clone IMAGE:360584 5' similar to contains L1.13 L1 |
|                        |                       |                   |                      |   |                             |                               | repetitive element;   |
| 5786                   | 18977                 |                   | 1.48                 | 2.0E-57                                       | AA016131.1                  | EST_HUMAN                     | 7b80f04.x1 NC1_CGAP_Ov18 Homo sapiens cDNA clone IMAGE:3670966 3' similar to contains TAR1.1        |
|                        |                       |                   |                      |   |                             |                               | MER22 repetitive element;   |
| 6158                   | 19334                 |                   | 31.41                | 2.0E-57                                       | BF115298.1                  | EST_HUMAN                     | Homo sapiens small inducible cytokine subfamily A (Cys-Cys), member 22 (SCYA22), mRNA               |
| 6288                   | 19461                 | 32813             | 8.34                 | 2.0E-57                                       | AF045452.1                  | NT                            | Homo sapiens cell-line KG1 transcriptional regulatory protein p64 mRNA, complete cds                |
| 8852                   | 21911                 | 35449             | 1.03                 | 2.0E-57                                       | AF057722.1                  | NT                            | Homo sapiens 17-beta-hydroxysteroid dehydrogenase IV (HSD17B4) gene, exons 3 and 4                  |
| 10054                  | 23089                 | 36691             | 1.06                 | 2.0E-57                                       | AF057722.1                  | NT                            |   |